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ABSTRACT

The investigation of developmental integration among preschool children included a descriptive study of social proximity and social integration in a university-based model program, a replication of the methods and analyses in seven community sites, and a comparative analysis of the findings. Observations of geographic proximity and social interaction were completed for 44 children in the university program and 165 children in community sites. Although no significant results were found for teacher association and child characteristics, significant differences between the programs were revealed. Among other results were that social isolation was rare, but when it did occur it was correlated by dysfunctional development and male sex; handicapped Ss were half as active as their nonhandicapped peers; and adult-child contact was more pervasive for handicapped Ss in all settings. The findings were interpreted to indicate that social proximity is not sufficient to assure developmental integration. (Author/CL)

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DIVISION OF INDIVIDUAL AND FAMILY STUDIES

The Effects of Age, Gender and Developmental Status on Social Integration Patterns in Early Childhood Classrooms

Final Report
December 1981

Judy Lynn Myers Burgess, Ph.D.
Project Co-Director

Gary L. Schilmoeller, Ph.D.
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The College of Human Development
The Pennsylvania State University

Bureau of Education for the Handicapped
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COLLEGE OF HUMAN DEVELOPMENT
PENNSYLVANIA STATE UNIVERSITY
UNIVERSITY PARK, PA. 16802

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Bureau of Education for the Handicapped
Student Research Grant Program

October 1, 1979 - September 30, 1980

EXECUTIVE SUMMARY

Introduction

Three major components comprised this investigation into developmental integration among preschool children. First was a descriptive study of social proximity and social integration in a university-based model program. The second study included a replication of the methods and analyses in seven community sites. The final component involved a comparative analysis of the findings from the two studies.

This series of exploratory studies addressed the issue of whether the anticipated benefits of mainstreaming were being realized. As such, the research encompassed the description and verification of existing patterns of social behavior. In addition, an attempt to determine the relationship, if any, between observed structural and functional interaction patterns and the child characteristics of developmental status, age, and gender was made. Social/structural variables were defined in terms of social proximity to teachers, developmentally different or similar classmates, and to other children of like or unlike gender. Functional relations were defined as the form and frequency of verbal and physical emissions and receptions among class members.

Methods

Forty-four children in the university program and one-hundred and sixty-five children in seven community outreach sites, ranging in age from two to five, provided the sample for this study. Of these, 56 were assessed as being delayed in aspects of their motor, cognitive, or language development.

Observations of geographic proximity and social interaction were conducted during the relatively unstructured period(s) of each program day when children typically engage in activities of their own choosing or creation. Individuals were randomly the focus of two-minute observational sequences recorded by rotating teams of observers using an electromechanical digital acquisition system (Datamyte) wherein impulses are subsequently transcribed into the computer for analysis and storage.

Results

Chi-square and covariance analyses were utilized to assess the contribution of each variable to both geographic proximity and social interaction. Though no significant results were found for teacher association and the child characteristics, significant dif-

ferences emerged between the programs. The university children were more likely to be with greater numbers of adults. This pertained to females, especially handicapped ones, in that program.

Aggregating with children of differing developmental status and gender prevailed for all classrooms and children. When groups similar on development were located, it was the normal children in the community program who were more often involved. Handicapped youngsters, especially handicapped young university program children participated more frequently in developmentally heterogeneous groups.

Heterogeneous association based upon the gender composition of the play group prevailed for females, especially those in the university program who were young and handicapped. In contrast, being a boy in the community program correlated with inclusion in same sexed groups.

Social isolation was rare, occuring in less than 1% of the instances. When social isolation did occur, experiencing dysfunctions in development and being a male were the correlated factors.

Social interaction measures revealed that handicapped children were half as active as their nonhandicapped peers. In addition, verbal behavior far outweighed physical responses.

Communication with teachers predominated the social existence of children in the university program. In all settings, adult-child contact was more pervasive for handicapped youngsters.

Child-child contacts, the hallmark of the community sites, were the province of normal children, especially males who were older. In addition, it was determined that contacts for nonhandicapped males were with other normally developing boys. The referent of social contact for nonhandicapped females was another nonhandicapped female. Handicapped boys and girls were rarely the emitters or recipients of social behavior in this context.

Discussion

Were the critical measures of developmental integration limited to geographic proximity in this study, it might have to be concluded that at least one of the primary goals of the current legislation was being accomplished, that of physical integration. However, a consideration of the social interaction measures presents a different and less optimistic picture.

This investigation was able to demonstrate that it is possible to isolate constellations of child characteristics predictive of differential social contact. Most importantly, the series of studies highlights the utility of integrating information from the discipline

of child development to the understanding and explanation of social processes with developmentally deviant and normal young children.

The results demonstrate the value of direct observations in natural settings. They substantiate the need to utilize discrete, objective, fundamental variables to identify more clearly the precursors or correlates of social integration.

The findings further illustrate that social proximity, though necessary, is not sufficient to assure developmental integration. Thus, the results provide a foundation against which to evaluate specific subsequent intervention strategies in order to assess the effectiveness of developmental assimilation. The value of differing levels of analysis is also highlighted.

The overall conclusion must be that the objective of providing a descriptive account of the directly observed structural and functional patterns of social contact in natural settings between developmentally disparate young children has been accomplished. In turn, the results suggest the need for more systematic investigation into intervention strategies, especially those mediated by caregivers, which promote developmentally appropriate social behavior.

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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

There exists today a major trend in education toward individualization for the purpose of maximizing the development of all individuals. Incorporated within this trend is the concept of normalization through the integration of handicapped children into the mainstream of society.

Current efforts toward normalization and the mainstreaming of handicapped children have resulted from an increased understanding that "normal" development has a low probability of occurrence in an "abnormal" environment. Children cared for in traditional institutions or other "special" settings are surrounded by a constellation of attitudinal, pedagogical, and social circumstances that, because of their atypical nature, may serve to create further dysfunctions in development (Busch-Rossnagel, 1979; Feeg & Peters, 1980). At the same time, accumulated evidence indicates that dramatic improvements in the behavior of exceptional children can result from systematic educational intervention (Smith & Neisworth, 1975), particularly where opportunities are provided for the modeling and imitation of nonhandicapped children's learning strategies (Cooke, Apolloni, & Cooke, 1977; Devoney, Guralnick, & Rabin, 1974; Guralnick, 1976; Peterson, Peterson, & Servin, 1977).

The two most frequently cited goals of integration of handicapped children into the mainstream of education are: (a) the amelioration or indeed the prevention of subsequent educational, social, and emotional disabilities stemming from the

labeling, rejection, or isolation of handicapped children (Bijou, 1966; Gerber, 1977; Goffman, 1963; Jones & Sisk, 1967; Levitt & Cohn, 1976), and (b) preparation for future incorporation into increasingly less restrictive environments (Hayden, 1974; Turnbull, 1980)--ultimately into regular classrooms and active participation in the community (Hayden, 1974; Wynne, Ulfelder, & Dakof, 1975).

However, the mere proximity of handicapped and nonhandicapped persons in a classroom has not resulted in the automatic achievement of these goals. Evidence exists which demonstrates that no significant increase in social interaction between children occurred under such circumstances (Cooke et al., 1977; Peters, Harris, & Busch, 1978), yet the formation of classrooms including physically or intellectually deviant children and normal ones goes on (Cruckshank, 1974; Verma & Verma, 1974). Indeed, recent legislative decisions have prescribed such integration or mainstreaming (P.L. 94-142, Federal Register, 1977) in synchrony with other political and social reforms in the 1970's (Turnbull, 1980). This has accelerated such efforts. To date, however, it is simply not known what the total impact such integration may have.

The purpose of the current research is to extend our knowledge of the processes involved in integrating handicapped children into normal early childhood settings. Specifically, the studies were designed to determine: (a) the structural characteristics of social contacts between children and teachers in integrated preschool classrooms, and (b) the functional

relationships between the form and frequency of social interactions and several child characteristics, namely, degree of developmental delay, age, and gender.

CHAPTER II

REVIEW OF THE LITERATURE

Early Social Development

That a relationship exists between early experience and later functioning is no longer open to question. An understanding of the complex problem of living cannot be obtained merely by relying on the traditional concepts of heredity, learning, cognition, and their interaction. These contributors increasingly lose their separate identities due to the nature of their bidirectional effects and, thus, fuse into the course of ontogeny. Development is the confluence of many interrelated systems including the biological, social, cultural, and historical (Looft, 1973). The product itself is then subject to continued elaboration and modification, building upon itself. The cumulated differences of the individual at one point in time become the basis upon which future change is made (Cairns, 1979). As aptly stated by Baltes (1973, p. 370), the "past is prologue to the present and the present prologue to the future."

It has been generally agreed that the early childhood period (less than five years of age) is the occasion when developmental processes and behavioral characteristics are undergoing rapid change and are most malleable (Bijou & Baer, 1965; Hebb, 1966; Hunt, 1961). Benjamin Bloom (1964) supports this idea when he stresses the importance of the early years as the foundation for the development of general intellectual functioning. He considers intellectual development to be at its point of highest

acceleration during this period and, thus, most susceptible to environmental intrusion at that time.

Most developmentalists would agree that the early experiences of children, those occurring during the first three years of life, are critical to social development. Consensus on this matter has not changed greatly over the past 30 years (Cairns, 1979).

In examining interpersonal relationships at differing ages, Yarrow (1975) claims that it is clear that closeness to and acceptance by one's peers are critical for optimal social development. Additional emphasis is provided by D. Slaby (1976) who writes of peer interaction as perhaps the most important forum for the development of social skills. This view has led Hartup (1979) to state emphatically that experiences with other children are not a superficial luxury.

With specific reference to the long-term effects of less than adequate social relations in early life, the following studies apply. Children who interact very little with peers and who show other signs of poor peer relations are considerably more likely than others to have additional adjustment problems. They exhibit a greater incidence of school maladjustment (Gronlund & Anderson, 1963), drop out of school more frequently (Ullmann, 1957), are delinquent more often (Roff, Sells, & Golden, 1972), obtain more bad-conduct discharges from military service (Roff, 1961), and suffer adult mental-health problems (Cowen, Pederson, Babigan, Izzo, & Trost, 1973; Kohn & Clausen, 1965; Roff, 1970).

Conversely, children experiencing deficits in their social functioning have been exposed to social training in the form of

specific opportunities, encouragement, consequation, or specific instruction to enhance their social skills. Successful efforts can be found in reducing isolate behavior (Allen, Hart, Buell, Harris, & Wolf, 1964), in increasing cooperative peer interaction (Allen, Benning, & Drummond, 1972; Hart, Reynolds, Baer, Brawley, & Harris, 1968), and in augmenting nonaggressive interaction (Brown & Eliot, 1965).

The essential message of behavior modification research is that social behaviors are not fixed; they are continuously vulnerable to changes in circumstances and reinforcement contingencies (Cairns, 1979). This work supports the contention that social competence should receive a much higher priority in policy deliberations during the next few years.

Indeed if, as noted by Bakeman and Brown (1980), early interaction affects development at all, it seems reasonable that social behavior in particular would be affected. Social ability may often be a more relevant outcome measure than cognitive ability.

Thus, it seems reasonable, in light of this information, to focus efforts at intervention on that early period of life, during the preschool years, which appears to be most sensitive to the development of social relations.

Definitions

In proposing comparisons between preschool children participating in integrated educational settings, there is an immediate need to define a number of terms. Thus, a consideration

of the concepts of normalization, exceptionality, and handicap will comprise the initial portion of this review of the literature.

Normalization

Incorporated within the trend toward the maximization of the developmental experience for all individuals is the concept of normalization (Birch, 1974; Nirje, 1968; Wolfensberger, 1972), with its attendant integration of children into the mainstream of society. Normalization refers to the inclusion of the individual into the least restrictive environment and fostering the greatest possibility of functioning within normal life settings and with normal peers in order to establish and/or maintain personal behaviors and characteristics which are as culturally normative as possible (Wolfensberger, 1972). This concept has its origins in a number of sources. As reviewed by Smith and Neisworth (1975), these included, first, the dramatic changes seen in the behavior of children, especially exceptional ones, as a result of systematic educational intervention. This is especially effective when specific opportunities for imitation and modeling are provided. A second source was an increased concern about the treatment of residents in traditional, segregated institutions. Third, the social inequity and dysfunctional consequences associated with social and physical isolation, primarily due to the stigmatizing of behaviorally delayed individuals, provided additional impetus. Finally, it was realized that normal behavior is less likely to be generated and maintained in abnormal settings. The convergence of all these factors provided the

foundation for current efforts to design and implement developmentally integrated programs.

Exceptionality

Inherent in the concept of development is the element of change. Thus, for example, Frankenberg and Dodds (1969), and Gessell and Amatruda (1941) have observed and tested children and queried their parents in order to determine whether developmental change is orderly. Through the analysis of commonalities in behavior, especially with young children, a typical sequence of development has been determined. Data gathered on vast numbers of children have been analyzed to establish typical or normal distribution curves for particular behaviors at particular ages. These represent normative patterns of growth and development, that is, patterns that hold on the average, all other things being equal (Peters & Willis, 1978).

Such normative information serves as the basis against which to assess the developmental status of individual children across a wide variety of behavior domains (e.g., cognitive, motor, social, and emotional). Such assessment provides a global estimate of a child's skill acquisition based upon his or her performance on "landmark" developmental tasks (Bagnato, Neisworth, & Eaves, 1978). Studies of existing differences have resulted in an awareness of the interindividual variability that exists, and a range of acceptable or normal behavior has been demarked.

Some variations in growth and development are too extreme to be considered within the normative pattern. Children who exhibit extreme differences relative to the norm have been labeled

exceptional. Kirk (1972) identified as exceptional those who deviate from average or normal in mental, sensory, neuromuscular, or physical characteristics, in social or emotional behavior, in communication skill, or those who have multiple handicaps to such an extent that they require the modification of school practices or special education services in order to develop to their maximum capacity.

Exceptionality or deviance from the norm can be located at either end of the resultant bell-shaped distribution curve. The atypical developmental progression that is of interest here is that which occurs in the deficit case. Therefore, information which applies to the higher or positive tail of the curve will not be included. Thus in this document, exceptionality relates to adaptational difficulties which result in special needs for medical, educational, and sometimes, institutional services to maximize individual potential (Hallahan & Kauffman, 1978).

Two distinct positions exist today concerning the classification of individuals experiencing developmental deficiencies. It seems important to describe each due to their differing impact on the investigation at hand.

The first perspective adopted by U.S. Department of Education, Bureau of Education for the Handicapped, focuses upon the child. Proponents emphasize the attributes, deficiencies, or defects of the child and uses a classification scheme for organizing important handicapping conditions. Handicapped children under this perspective are those children evaluated "...as being mentally retarded, hard of hearing, deaf, speech

impaired, visually handicapped, seriously emotionally disturbed, orthopedically impaired, deaf-blind, multihandicapped, or as having specific learning disabilities, who because of those impairments need special education and related services" (Education of Handicapped Children, 1977, p. 41478). Within each of the classifications is a series of more precise subclassifications. The traditional classifications of exceptionality are accepted by both the American Association of Mental Deficiency (Grossman, 1973; Guralnick, 1980) and the American Psychiatric Association (1977) as well.

An alternative perspective, however, is organized, not around common classification characteristics, but around the child's functional capabilities and actual behaviors. The question becomes, "What can s/he do?" (Northcott, 1970, 1976; Pollack & Ernst, 1973; Stern, 1969; Weinstein, 1968). Such a focus shifts attention to what can be done for the youngster educationally and away from the extent and character of his or her deviations (Smith & Neisworth, 1975). In this manner, labeling and the blaming of the child for his problems may be averted.

Such a conceptualization suggests the relative nature of exceptionality. Therefore a child may be exceptional at one time and not at another, or in one situation and not another, depending upon the environmental conditions which obtain. Such a perspective is thus more sensitive to local conditions, community (social) norms, and prevalent performance expectations (Smith & Neisworth, 1975). Exceptional children are viewed as being

quantitatively rather than qualitatively different from normal ones (Hallahan & Kauffman, 1978).

Handicap

For current purposes, a functional and interactive definition of handicap is adopted. That is, handicaps are defined as the product of the result of a mismatch of child characteristics and environmental demands.

Busch (1979) provides an example of this in her description of the interdependence of biological functioning between mother and infant during pregnancy where insults to the mother's functioning are also insults to the child. Thus, for instance, a minor infection for the mother, like rubella, might, depending on the timing, be potentially devastating for the child, the consequence of which makes the child's functioning on the biological level exceptional. In the terminology of Susser and Watson (1971), this is the child's impairment. An example of such an impairment is limb deformity. Such impairments have both response characteristics and stimulus characteristics.

Disabilities as response characteristics are functional limitations which result from the impairment. According to Susser and Watson, such disabilities might include the inability to walk or the inability to see (blindness). A disability will constitute a handicap, i.e., a social limitation, only within certain physical environments and at certain developmental stages. For example, there are a number of individuals who are unable to walk, yet this functional limitation is not a handicap. These, of course, are infants. The limitation relative to walking becomes a

handicap as the child grows older and exists in an environment where mobility is required. If the environment is modified to permit alternative mobility, e.g., a wheelchair, the child does not experience a disability. Prothetics are other means by which to ameliorate disabilities.

However, the impairment may or may not act as a stimulus to others. If members of one's social environment are not aware of the impairment, a stimulus handicap is not generated. Generally, though, the stimulus properties of the impaired child's physical appearance, behavior, and patterns of movement may identify the child as atypical (Gottlieb, 1975). If impairment or its resultant disability is apparent, it may evoke advantageous or disadvantageous consequences. Others may respond by providing appropriate developmental stimulation for the child. If such advantageous outcomes occur, the result is nonhandicapping because there is little or no limitation of social roles. Alternatively, other individuals may respond in a disadvantageous way, and a handicapping condition may result. For example, the stimulus properties may act as a deterrent to social interaction (Bijou, 1966; Neisworth, Smith, & Jones, 1977). The number of social contacts and the level of peer acceptance of handicapped children have been found to decrease as the visibility (Brunicks & Kennedy, 1974; Force, 1956; Levitt & Cohen, 1976) and the severity (Ensher, Blatt, & Winschel, 1977; Syracuse University, 1974) of the child's impairment increase. A sequelae of socially compounded problems of body or behavioral origination is the result.

As with all development, the bidirectional influence of the components must be kept in mind. The dynamic ongoing fusion between the effects of functional stimulation (experience) and biological potential, wherein each changes and in turn is changed by the other, is foundational to the understanding of what constitutes a handicap. This mutual or interdependence among the multitude of factors involved in the maximization of individual potential precludes the utilization of a less complex explanation.

Mainstreaming

Mainstreaming or developmental integration is the term currently used to refer to the placement of impaired children in educational settings with their normally developing peers. Three types of integration are incorporated within the concept of mainstreaming. These are temporal, social, and instructional (Kaufman, Gottlieb, Agard, & Kukic, 1975). Thus both physical inclusion and functional inclusion are stressed (Turnbull, 1980).

Mainstreaming is but one component of the broader principle discussed in this document as normalization. The physical and social integration of individuals of varying developmental histories and capabilities is the mechanism through which the concepts of normality and exceptionality are merged. As such, it formulates the remaining portion of this first section on the concept of mainstreaming.

Mainstreaming Mandate

The realization of the value of "normal" environments, concurrent with the positive results of systematic educational

intervention with exceptional children (Bronfenbrenner, 1975; Hart & Risley, 1968; Sulzbacher & Kidder, 1975), has led advisory committees, such as the President's Committee on Mental Retardation (1971), to recommend against the institutional management of developmentally delayed children. This position coupled with a widespread dissatisfaction with the performance of children in separate or "segregated" special classes (e.g., Dunn, 1968) and the pressure of judicial decisions provided the impetus for the passage of a number of important pieces of legislation, culminating in Public Law 94-142 (Federal Register, 1977). Legislation now encourages (for children below school age) or requires (for school age children) the integration of handicapped individuals into regular educational programs, whenever their developmental status permits. This has resulted in a shift of responsibility from organizations and institutions to public schools.

P. L. 94-142 contains a number of additional requirements: (a) a written educational plan for each child, (b) close involvement of parents in planning and decision making, and (c) continuing progress in moving the child to the least restrictive environment. The law also specifies that the evaluation of developmentally delayed children must take into account any influences on performance resultant from the child's cultural background, primary language, and past history (Bricker, 1978).

Goals

The goals toward which P. L. 94-142 was directed were consistent with those which an earlier generation of

developmentally integrated exploratory programs had sought to attain (DeWeerd, 1974). Basically, those goals were two-fold: 1) the depression of segregative attitudes and behaviors by persons other than the developmentally delayed individual; and 2) the enhancement of the handicapped person. Both were assumed to maximize the potential of all individuals concerned--the nonhandicapped as well as the handicapped--and to reduce the immediate and long term effects of impairment.

The goals, called stigma removal and competence enhancement by Galloway and Chandler (1978), have produced a number of subgoals. Within the area focused on the decrement of both physical and psychological segregation is the diminution of educational, social, and emotional disabilities stemming from the rejection, labeling, isolation, or insensitive treatment of impaired children (Bijou, 1966; Gerber, 1977; Goffman, 1963; Jones & Sisk, 1967; Levitt & Cohen, 1976; MacMillan, 1973; Mercer, 1973). Developmental integration seeks to lessen the effects of attitudinal and physical separation through the mutual exposure among both delayed and normally developing individuals. Strategies for stigma removal range from the provision of prosthetic or cosmetic treatment to the elimination or reduction of behaviors that serve as stigmata (Gardner, 1971).

Competence enhancement encompasses a variety of subgoals as well. When program developers initiated their efforts to enhance the skills of delayed individuals, they found a paucity of curricular examples available. Thus, the creation of specific curricula, including not only the behaviors to be enhanced but

also prescriptions for presenting or teaching those behaviors, assumed first priority. The contents of the curricula covered the basic developmental areas of language, self-help skills, motor skills, and socialization (Apolloni & Cooke, 1978; Bricker & Bricker, 1974; Foresberg, Neisworth, & Laub, 1977). More comprehensive programs also created training packages for parents and teachers to support the achievements made by children (e.g., Peters, McConnell, & Burgess, 1977). Many model programs and strategies of intervention were based on psychological theories, in the same way numerous other educational programs have been (Peters, 1977). Today, many examples, based on a range of theories, have been developed and disseminated as part of the Handicapped Children's Early Education Program (HCEEP) or First Chance Network, funded by the Bureau of Education of the Handicapped.

In addition to a scarcity of curricula, few developmental diagnostic, evaluative, or screening instruments existed. Nor were there many books or writings on how to establish preschool programs for handicapped children. The generation, through research and development, and subsequent dissemination of information on diagnosis, assessment, and screening became another priority area. Each has been addressed through a variety of research and developmental efforts. The principal aim of these efforts remains the ultimate inclusion of delayed individuals in preschools, early education programs, and the public schools in regular classrooms (Hayden, 1974; Wynne et al., 1975).

Related Research: Overview

Accompanying these large-scale efforts in finding, screening, diagnosing, and teaching handicapped children has been a renewed interest in the effects of heterogeneous grouping of children based on ability. Collectively, the available data suggest that preschool mainstreaming does more good than harm (Turnbull & Blancher-Dixon, 1980). For example, handicapped children have learned both social and language skills from their normal classmates (Bricker, 1978; Cooke et al., 1977; Devoney et al., 1974; Guralnick, 1976; Guralnick & Paul-Brown, 1977; Karnes & Lee, 1979; Neisworth & Madle, 1975; Nordquist & Bradley, 1973; O'Connor, 1969).

Studies directed toward the question of whether early mainstreaming has, in fact, prepared handicapped children for later inclusion in school programs also have been undertaken. Rister (1975), for example, reported on the proportion of deaf children who continued on to elementary school after preschool experience. Sixty-two percent were in regular classrooms, while 30% were in special education classes. Kennedy, Northcott, McCauley, and Williams (1976) reported that sociometric ratings of social status for a similar population were equivalent between handicapped and normal classmates some three years after integration occurred.

Critique

A recent review by Bell (1977) concerning developmental integration suggests that, in general, the research in mainstreaming has been weak in a number of important areas.

First, the amount of research pertaining to the integration of developmentally delayed children with normally functioning ones (particularly at the preschool level) is scarce (Guralnick, 1978, 1980) and has been conducted primarily in atypical settings. Most of our knowledge about the efficacy of training efforts with developmentally delayed children has been gained in ideal situations, under special educational circumstances, or under highly controlled conditions (Cohen & DeYoung, 1973; Meyer, Vergason, & Whelan, 1975; Warfield, 1974; Wegley-Brown, 1979).

Second, the investigations have not taken into account whether particular child characteristics might impact on or bias the resultant data. The rich body of knowledge available concerning normal child development suggests that such factors as the age and gender of the child are important to the sequence and rate of behavioral acquisition under any circumstance, including those of mainstreaming.

Third, longitudinal studies providing analyses of the processes and changes that occur during the integration of handicapped and nonhandicapped children are virtually unknown.

Fourth, the traditional laboratory data of developmental psychology have been recently attacked from many quarters as lacking validity in real-life situations, and, therefore, being inadequate for application to handicapped persons (Brooks & Baumeister, 1977), to public policy (Bronfenbrenner, 1974), or to an adequate science of developmental psychology (McCall, 1977).

Finally, the major hiatus in such research, according to Bell, occurs in the area of methodology. Popular research

strategies rely most heavily on the use of indirect measures. For example, to determine the integration of handicapped and nonhandicapped classmates, symbolic stimuli such as pictures or interview questions have frequently been utilized. Few studies have focused upon behavioral interactions obtained in vivo.

Relative to young children these criticisms have spurred a small explosion in the number of studies which have retained traditional concern for strong methods while incorporating naturalistic observation in order to maximize ecological validity (Leiter, 1977; Lougee, Gruenich, & Hartup, 1977; Rubin, Maioni, & Hornung, 1976; Reuter & Yunik, 1973). However, there is still little evidence concerning the social order of developmentally delayed children when interacting with their normal peers (Guralnick, 1978; Field, 1980). As Madle (1982) has pointed out, providing culturally normative services (integrated programs) are not sufficient; providers must demonstrate that services lead to desirable outcomes.

In sum, much more observational research is needed on the process of integration of handicapped preschool children into normal preschool settings under naturalistic conditions.

Overview of the Research

From this brief review of the literature, it is evident that the integration of children who are experiencing atypical progression in their development into educational proximity with their normal peers may or may not accomplish the objectives upon which recent legislative action is predicated. The failure of passive remediation to lead to normal social behavior suggests the

need, first, for a data base concerning the social abilities of handicapped children in normal settings, and secondly, for the study of planned, systematic intervention.

The present study is one in a series of investigations originating at The Pennsylvania State University focused on the analysis of conditions associated with the social acceptance of young developmentally delayed children in mainstreamed early childhood settings. In the first of these studies (Peters, Harris, & Busch, 1976), 12 handicapped and 12 nonhandicapped children and their teachers were observed to determine the degree of teacher/child and child/child interaction. Several interesting findings were noted. Handicapped children were found to have fewer interactions with either other handicapped children or nonhandicapped children than were nonhandicapped children. Further, handicapped children had significantly more interactions with teachers than did nonhandicapped children. The interactions of teachers with handicapped children were significantly more often physical (hand holding, wrist holding, sitting on lap) and served to limit the social interactions handicapped children might have had with their peers. Teachers also were more likely to place themselves in proximity with handicapped children. The authors concluded that there was a need for more teacher training to guide teachers to promote peer interaction rather thar inhibit it.

A second effort (Wegley-Brown, 1979), identified and described certain antecedent variables postulated to influence spontaneous levels of social integration and interaction. These

variables included child characteristics such as child age, developmental level, social competency, type of handicapping conditions, family background, and gender. The characteristics of teachers included education and training, attitudes toward mainstreaming, and perceived teacher competence. Classroom characteristics included the number of children, the ratio of handicapped to nonhandicapped children, the adult-child ratio, and the types and complexity of materials and equipment.

Conclusions from these data revolved around social integration and participation which might differentiate the two groups. Wegley-Brown found that handicapped children were socially and physically integrated but were less active in social encounters with their peers than were nonhandicapped children in the same classrooms. Their levels of social interaction and levels of social play correlated with ratings of social competency and developmental levels calculated by their teachers. Social behavior of the handicapped children also was affected positively in classrooms which included fewer barriers to movement and incorporated complex and multiplex play units. This contrasted with the behavior of their normal peers who played more actively and at higher levels when super play units were available.

Neither teacher training nor self-perception of teaching competence were found to be instrumental in differentiating social behavior among the integrated populations studied. Wegley-Brown's study was, however, cross-sectional, involving one time observations in each of 60 classrooms. It provided neither data on the stability of social problems nor on their development.

Purpose

The current investigation was focused on further remediation of the methodological hiatus identified by Bell (1977), that of direct observation among preschool-aged handicapped and nonhandicapped children. In addition, the relationship between specific child characteristics and the transactional social behaviors observed moment by moment in developmentally integrated settings were assessed.

The child characteristics of concern were chronological age, gender, and development status. All were utilized alone or in combination as antecedent or independent variables for analysis. The primary dependent or transactional variables were group associations and social interaction. The former was viewed as a structural characteristics of the social situation; the latter as an indicator of functional relationships. Patterns of social contact were further reduced into the components of form and frequency. Differential interaction among children themselves and with their teachers were of special concern.

In particular, the studies were designed to:

1. Describe and verify existing patterns, both structural and functional, of social behavior in mainstreamed classrooms.

2. Determine the relationship, if any, between existing interaction patterns and the age, gender, and developmental status of the children involved.

3. Determine whether the social transactions evidenced in a university-based model integrated program describe patterns of social interaction in community educational sites.

Operational Definitions

In order to answer the above questions, the following variables (See Table 1) have been identified as pertinent. A listing is presented along with definitional statements.

As used in both of the studies that follow, the variables are defined as:

Child Characteristics

Age: An individual's chronological age in months. In several of the analyses, this becomes a categorical variable of older (>5 yrs.), middle (3-4), or younger (<3 yrs.).

Gender: The biological sex of the individual, either male or female.

Developmental status level: The degree of developmental retardation or deviance of the individual. The determination of this variable differs for the two studies, and specific definition is provided in the methodology section of each. In each case, it represents a dichotomized variable of handicapped or nonhandicapped.

Structural Characteristics

The characteristics of freely associated groupings within the classroom.

Teacher association: The number of adults within a cluster of children within a classroom. All adults whether students, aides, parents, or teachers were defined as teachers for purposes of the studies.

Developmental association: The mix of children within a group based upon the pre-assessed developmental level of the

children. This was a dichotomous variable, either heterogeneous (mixed developmental levels) or homogeneous (same developmental level). No notation was made regarding the number of participant children within the group.

Gender association: The mix of children within a group based upon the sex of the children involved. This was a dichotomous variable, either heterogeneous (mixed-sex grouping) or homogeneous (same-sex grouping).

Functional Relationships

Frequency of interactions: The number of interactions--active interchanges--involving a child during the periods of observation when that child was "focal."

Form of interaction: The descriptive characteristics of the active interchanges involving the target child during periods of observation.

Verbal: Exchanges involving language on the part of the target child, another child, or teacher.

Physical: Exchanges involving touching, holding, or other physical contact between individuals involving the target child, another child, or teacher.

Give: The emission of a verbal or physical exchange to another individual.

Receive: The reception of a verbal or physical exchange.

Referent: The other individual involved in the social contact.

Table 1

Variable Domain of the Research

Independent Variables	Dependent Variables
Child Characteristics	Structural Characteristics
Age (younger, middle, older)	Teacher association (number of teachers in group)
Gender (male vs. female)	Developmental association (heterogeneous vs. homogeneous on developmental level)
Developmental level (handicapped vs. nonhandicapped)	Gender association (heterogeneous vs. homogeneous on sex)
	Functional Relationships
	Frequency of interaction
	Target of interaction
	Form of interaction
	Verbal vs. physical
	Give
	Receive

In each case the selection of variables and their operational definitions was made to maximize the directness of measurement, to build upon previous research and to minimize observer inference.

CHAPTER III

STUDY I

Purpose

The major purpose of this study was to analyze social transactions, especially as these differentiate between individuals experiencing developmental delays and their normal classmates, within a university-based demonstration classroom.

The specific objectives were to:

1. Describe and verify existing patterns of social behavior in a demonstration mainstreamed classroom.

2. Determine the relationship, if any, between existing structural and functional interaction patterns and the developmental status, age, and gender of the children involved.

3. Assess the feasibility of the data collection procedures.

The investigation was viewed as the initial exploratory stage of a systematic movement toward extended validation to prescription.

Rationale

Patterns of social contact between teachers and children in a preschool classroom are central to the purposes and processes of early education (Evans, 1977). For children to benefit maximally from early education experiences, they must become actively engaged in the social and educational activities that are planned. Yet, individual differences clearly exist in normal patterns of children's activity. For example, recent information points toward differential interaction patterns within classrooms as a

function of the age of the children. Gottfried and Seay (1974) found that older children engage in more frequent peer social activity. Identical results were found by Parten (1932) and Reuter and Yunick (1973). Verbal interactions increase (Berk, 1971; Garvey & Hogan, 1973; McGrew, 1972; Reuter & Yunick, 1973) and reciprocity in both verbal behavior (Mueller, 1972) and positive contacts (Charlesworth & Hartup, 1967; Hartup, Glazer, & Charlesworth, 1967; Kohn, 1966; Marshall & McCandless, 1957; Moore, 1967) occurs. Social contacts in general (Bott, 1934) become more frequent as children grow older. They become more cooperative (Hartup, 1970; Feitelson, Weintraub, & Michaeli, 1972), and the amount and length of social interaction increase as well (Reuter & Yunick, 1973).

Gender also has been found to be related to amounts of social interchange. In the study previously cited, Gottfried and Seay (1974) found males to be more involved in activities with their peers than were females. In addition, there was a decided preference for play companions of one's own sex (Able & Sahinkaya, 1962; Berk, 1971; McCandless & Hoyt, 1961; McGrew, 1972; Reuter & Yunick, 1973). An analysis of the relationships between teachers and students revealed that differential attention of teachers was highly correlated with the gender of the child with whom s/he was interacting (Martin, 1972; Serbin, O'Leary, Kent, & Tonick, 1973). All activities from males were more likely to attract teacher attention. Girls were more likely to be ignored.

When children of differing functional levels are integrated with their nonhandicapped agemates, further differentiation of

patterns of interaction is likely to exist. For example, Spitz (1945), Fink (1972), Biller (1975), Skeels (1966), and Wegley-Brown (1979) found that differing amounts of social exchange were highly related to the degree of a child's developmental delay. Indeed, much current research suggests that even under favorable conditions desirable social interaction patterns may not occur for delayed children (Cooke, Apolloni, & Cooke, 1977; Peters, Harris, & Busch, 1978). In some instances, familiarity actually contributed to increased peer rejection (Ensher, Blatt, & Winschell, 1977).

Additional research indicates that these factors of developmental level, age, and gender do not operate independently. Martin (1972) reports that males who are experiencing behavior problems are involved in interaction significantly more often than are males without such problems and more than females in general. He further notes that these social contacts are typically initiated by teachers.

Thus, a primarily comparative and descriptive study was proposed to investigate the subtle, day-to-day patterns of social interaction among participants in an integrated university-based demonstration preschool classroom. This investigation attempted to determine the structural and functional characteristics of all social contacts made between the children and teachers of that classroom. In order to accomplish this, the relationship between the structure of social groups within the classroom and the form and frequency of social transactions were studied. Analyses were undertaken to determine how the child's degree of developmental

dysfunction, age, and gender were related to the interactions that occurred.

The general hypotheses that were tested, in the null form, were:

1. There are no significant differences in the structural characteristics of classroom groups in which children varying on developmental level, gender, and age participate within the demonstration preschool setting.

2. There are no significant differences in the functional interaction patterns observed for children varying on developmental level, gender, and age within the demonstration preschool setting.

Although the literature cited suggests the potential for differences, the null form of the hypotheses represents the operational ideal for an integrated program.

Methods

Sample

Forty-four children, ranging in age from two to five, who attended a university-based model preschool that concurrently served both children judged to be normal and children assessed as being delayed in at least two features of their motor, social, or intellectual development were selected as the population of observation. This included 20 males and 24 females. The age distribution was 37 children who were less than four years of age while seven were older than four. The children's teachers were also included in the study. The 20 member sub-sample of children identified as being delayed exhibited dysfunctions including high

risk, seizure, impairment of vision, hearing loss, physical or motoric deficits, mental retardation, or multiple combinations of these.

Initial contact was made in written form to the director to be processed through a research committee. The information contained within the document related to the description of the study and a detailed outline of the procedures to be used.

Upon approval, the potential participants were contacted in two ways. For the teachers, a personal explanation covered the above mentioned information. Omission as to the specific study goals was made in order to guard against the biasing of results. Then, a consent form was given to the teachers for their signature.

For the parents, a letter explaining the study and soliciting their consent was sent home. The letter also made provisions for parental contact should any questions arise. The investigator, in addition, made herself available at the preschool to resolve any questions.

Setting

The demonstration classroom was located in the Child Development Laboratories of the College of Human Development at The Pennsylvania State University. This program was behaviorist in orientation and was funded as a demonstration program by the Bureau of Education for the Handicapped. Since it served as a training and demonstration site, the number of adults in the classroom varied from three to eight daily depending on the time of day and the activities under way.

Measures

Independent measures. The age and gender of the subjects were determined through analysis of preschool records obtained during intake interviews. The developmental level of the children was identified through an initial assessment with the normative Denver Developmental Screening Test and through a follow-up made by the staff of the HICOMP (Handicapped Children's Outreach Model Program) using the Gesell Developmental Schedules (Knoblock & Pasamanick, 1974). The Gesell determines a child's maturity level in the motor, adaptive, language, and personal-social areas of development. Criteria referenced measures were also available for children based upon their classroom behavior. From these measures, children were categorized for their performance in four areas of development: communication, own-care, motor, and problem solving. Children performing significantly below norms (one-standard deviation) in at least two of their developmental areas were designated as having delays for purposes of this study.

Dependent measures. Observed social interactions were the dependent measures for the study. Observations were made during the relatively unstructured period(s) of each program day. During these times, the children typically engage in activities of their own choosing or creation. Observations were made for approximately 60 minutes per day, 4 days per week, for 25 weeks. During the time period for observations, actual data gathering was conducted in sequential two-minute segments.

Social contacts between children, and between children and teachers, were determined using a behavioral observation scoring

system (BOSS). This system is used to record specific behaviors through the implementation of a digital data acquisition procedure (Sackett, Stephenson, & Rupenthal, 1973). When an investigator depresses any of the positions on the 10-digit keyboard, an electrical impulse is activated. The resultant impulses are subsequently transcribed through an interface into the computer for storage and analysis.

This recording system offers several advantages over most other types of behavioral observation systems. These include: (a) a small portable system, (b) a system that is reliable (Meighan, 1974), (c) a system that is integrated with existing computer programs and facilities, including the capacity to take information directly from the machines, and (d) a system which observers can easily learn. Reliability has been established in as little as two weeks' time at the Child Development, Mental Retardation Center, University of Washington, and the Child Development/Child Service Laboratory and through Project Interact at The Pennsylvania State University.

Observer training. Three individual observers (two graduate students and one undergraduate student in child development) were trained following a prespecified sequence. This consisted of observing episodes of social interaction between two persons either in vivo, via television, and/or from an observation booth adjacent to the classroom. Coders were instructed to begin with the first column, first code entry. They were told to read the operational definition and then to observe individuals, isolate the occurrence, and number it. Concurrently, they were required,

when numbering, to depress the appropriate key on the recorder board. When they felt that the targeted behavior was easily recognized by themselves, they were allowed to proceed to Behavior 2 in column 1 (See Table 2). Thus, the sequence was to train down each column moving across columns from left to right until the total code was covered. When a column of behavior became familiar, coders were brought into the observation booth and, with the principal investigator, pointed out instances of behavior, verbally and physically coded them, and received confirmation. When relatively consistent agreement was achieved, observers were allowed into the classroom. Again, verbal matching of interactive episodes was the primary training vehicle. Upon achieving a relatively high degree of verbal agreement, observers were instructed to activate the equipment. They were told to depress entry keys and to complete the mechanical entries prior to verbally matching them. The printouts were compared and areas of disagreement resolved. The next step in the training sequence consisted of behavioral coding utilizing only the keyboard. Again, printouts of entries were compared and reliabilities calculated using an agreement divided by agreement plus disagreement formula. When reliabilities of greater than .70 were achieved by the observers, they were permitted to commence with the collection of data for analysis.

Procedures. Upon entering the classroom, the coders would locate the focal individual based upon a table of random numbers. They would then record initial setting data concerning prespecified parameters of the group of which the individual under

TABLE 2
INTERACT CODE*

Social	Affect	Referent(s)	Consequence
1 Verbal give	1 Neutral	01 Female adult	1 Command (do)
2 Verbal receive	2 Positive	02 Male adult	2 Command (don't)
3 Physical give	3 Negative	03 Nonhandicapped male	3 Refuse
4 Physical receive	4 Mixed	04 Nonhandicapped female	4 Comply
		06 Handicapped male	5 None of the above
		07 Handicapped female	
		**	

** additional referents
97 non-human
98 self
99 group

*Modified from Project Interact Code (Burgess & Conger, 1979)

Setting	Data
55555	Signal to computer to commence
#####	Date (month, day, last digit of year)
##0##	Recorder/0/observer
###0#	Program/0/session (AM=1, PM=2)
66666	Focal subject commencement
#####	Group composition number of teachers: 0 isolate, 3 males, 4 females, 5 mixed; 0 normal, 1 mixed, 2 delayed; focal subject identification
99999	End of focal session
77777	End of observation session

observation was a member. These groups were usually small in number and were geographically distinct from other congregations of individuals in the room. The children might be seated around a table or playing house in the dramatic area for example. The number of teachers present in the group was recorded first. The additional entry data consisted of the sexual makeup of the group--whether all males, all females, or a combination of children of both sexes.

The developmental composition, whether all nonhandicapped, all handicapped, or whether a mixed group comprised the aggregation was noted. The final entry was that which identified the person to be observed. This information was coded prior to the initiation of each two-minute observational sequence for every individual focal subject chosen in a random manner.

Using a behavioral code (for definitions, see Appendix I), the frequency and form of social interaction were assessed. Each digit in a five-column coding sequence corresponded to certain behaviors. Column 1, represented by the first keyboard depression, indicated the initial mode or direction of the behavior as either 1) verbal give, 2) verbal receive, 3) physical give, or 4) physical receive (See Table 2).

Column 2 showed whether the contact was 1) neutral, 2) positive, 3) negative, or 4) mixed, a combination of positive and negative.

Columns 3 and 4 recorded whether the other individual involved, that is the referent, was an 01) adult female, 02) adult male, 03) normal male child, 06) delayed male child, 04) normal

female child, 07) delayed female child, 98) the child himself or herself, or 99) the group. Ninety seven represented a nonhuman object.

Column 5 identified the content of the interaction as a 1) positive command (do), 2) negative command (don't), 3) compliance, 4) refusal, or 5) none of these.

Some examples may serve to clarify. If an observer pressed the following sequence of numerals, 1-1-01-5, this would represent a verbal give which was neutral in tone, directed toward an adult female, and where no command, refusal, or compliance was included. Such an instance might be "Hi, Mrs. A."

Another situation might occur in which the target child was hugged by a handicapped male classmate. This would be coded as 4-2-06-5. Or a 1-3-04-2 would connote that the child being observed told a female classmate who was developmentally normal not to do something, using a harsh tone of voice.

Thus the form of the contact, its direction, affective tone, the individuals involved, and any command or compliance parameters could be assessed. These were calculated as frequencies. Previous work (Burgess & Conger, 1977; Gordon & Kogen, 1974) indicates that these seemingly brief and few sessions are generally adequate for describing the interaction patterns between group members.

Since observational teams of two members were concentrating on the same randomly selected individual during any two-minute recording interval, their reliability could be calculated. Team membership was rotated throughout the study. Reliability

standards of .70 or greater were maintained. All observations were transmitted to the computer on a daily basis for storage and subsequent analysis.

Data Analysis

A series of contingency analyses (chi square) were conducted to determine the relationship of each independent variable (developmental level, age, gender) on each dependent variable. Interaction effects were determined by entering each independent variable into an analysis of covariance through a step-wise multiple regression equation to determine its contribution, individually or in combination, to the prediction of the dependent variables.

Results and Discussions

Classroom Composition

Prior to the initiation of the major analytic phase of the study, a comparison of the university classroom population parameters and observational sample statistics was made. An almost equivalent number of males (N = 20) and females (N = 24) comprised the class membership. The proportion of two-minute blocks of observational time was found to be divided into 47.2% for males and 52.8% for females. Of the 44 participants, 20 were classified as handicapped in at least two facets of their development. This resulted in proportions of 54.5% who were nonhandicapped and 45.5% who were. Post observational calculations revealed that 53.5% of the observational periods focused on nonhandicapped children while 46.5% targeted handicapped children. The age proportions for the class as a

whole were 86% for children who were three years of age or younger and 14% for those four or over. The percentages of observational sessions including children of these ages were 84.1% and 15.9% respectively.

Thus, the post observational analysis revealed that the observations obtained adequately reflected the population characteristics of the university demonstration classroom.

Chi-square analysis revealed that no statistically significant differences existed between developmental status and gender and age and the proportional segments of the observation data.

Structural Characteristics

Hypothesis 1 stated:

There are no significant differences in the structural characteristics of classroom groups in which children varying on developmental level, gender, and age participate within the demonstration classroom setting. Structural characteristics were defined in terms of teacher associations, developmental associations, and gender associations. The hypothesis was tested by means of a series of chi-square analysis.

Teacher association. Table 3 presents the frequency and percentages of observed groupings cross-tabulated with age, gender, and developmental status. As may be seen in the table, the majority of the time the observed children were engaged in groups that included one or two teachers (72%). Chi Square analyses indicated no significant contingencies between any of the child variables and the pattern of teacher associations. A

Table 3

Frequency and Percentages of Social Proximity to Teachers

by Handicapped and Nonhandicapped Males and Females of Varying Ages

			0		1		2		3		4		5		6		7	
			f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Handicapped	Male	Young	0	0.0	6	2.0	5	2.0	1	.03	1	.03	0	0.0	0	0.0	0	0.0
		Old	0	0.0	6	2.0	7	2.0	3	1.0	6	2.0	0	0.0	0	0.0	0	0.0
	Female	Young	4	1.0	32	11.0	24	8.0	13	5.0	5	2.0	1	.03	1	.03	1	.03
		Old	3	1.0	7	2.0	3	1.0	2	1.0	1	.03	1	.03	0	0.0	0	0.0
Nonhandicapped	Male	Young	10	3.0	40	14.0	34	12.0	10	3.0	3	1.0	2	1.0	1	.03	0	0.0
		Old																
	Female	Young	2	1.0	26	9.0	15	5.0	5	2.0	3	1.0	0	0.0	1	.03	0	0.0
		Old	0	0.0	0	0.0	0	0.0	1	.03	0	.00	0	.00	0	0.0	0	0.0
Total			19	7.0	117	41.0	88	31.0	35	12.0	19	7.0	4	1.0	1	.03	1	.03

follow-up regression analyses to determine interaction effects of the three child factors revealed none. The data indicate no differential selection or self-inclusion in a group relative to the number of teachers present in this university-based demonstration program.

Developmental association. The second facet of the association question addressed the self-grouping of children on the basis of their developmental status. Here, matters of heterogeneity (mixed developmental status) and homogeneity (same developmental status) were of interest. Data relevant to this issue are found in Table 4. All children were found to be more likely involved within a heterogeneous group of children than within a grouping homogeneous on developmental status. Chi Square analyses indicated no significant effects of age or gender. However, the developmental status of the target child was significantly related to the nature of the groupings in which he or she was observed to participate ($X^2 = 6.21$, $df = 1$, $p < .01$). Handicapped children were less likely to be involved in homogenous groupings than were nonhandicapped children. When homogenous groupings were observed, they were more likely to include nonhandicapped children than handicapped children.

Follow-up covariate analyses, using the combined terms as dummy variables, revealed no interaction effects.

Gender association. Heterogeneous or homogeneous group association based upon gender formulated yet another component in the analysis of structural characteristics. As may be seen in Table 5, the majority of the observed groupings (79%) were

Table 4

Frequency and Percentages of Heterogeneous and Homogeneous Developmental Association for Handicapped and Nonhandicapped Males and Females of Varying Ages

			Heterogeneous		Homogeneous	
			f	%	f	%
Handicapped	Male	Young	13	11.5	0	0.0
		Old	18	81.8	4	18.0
	Female	Young	70	52.6	11	8.3
		Old	11	61.1	6	33.3
Nonhandicapped	Male	Young	70	61.9	30	26.5
		Old				
	Female	Young	39	29.3	13	9.8
		Old	0	0.0	1	5.6

Table 5

Percentage of Gender Association for Handicapped and Nonhandicapped Males and Females of Different Age Levels

			Heterogeneous		Homogeneous	
			f	%	f	%
Handicapped	Male	Young	12	04	1	00
		Old	17	06	5	02
	Female	Young	65	23	16	06
		Old	11	04	6	02
Nonhandicapped	Male	Young	81	28	18	07
		Old	0	00	0	00
	Female	Young	40	14	12	04
		Old	1	00	0	00

heterogeneous on gender. Chi Square analyses revealed no significant relationships between the age, sex, or developmental status of the target child and the gender mix of the group with whom he or she was observed. Nor did the regression analyses uncover any interaction effects.

Isolate behavior. Occurrences where children were not in proximity to other children were also included in the coding system. It is interesting to note that there were only four instances where children in this university setting were engaged in isolate behavior relative to their peers or teachers. Three out of these (75%) involved handicapped children. All were four years of age or older ($X^2 = 7.97$, df = 1, $p < .01$).

These findings are supported by the regression analysis which revealed a small but statistically significant overall relationship between isolation and age ($R = .15$, $p < .05$).

Conclusions. The major conclusions that can be drawn from the preceding section dealing with the structural characteristics of children's groups is that preschool children in this university-based model program tend to associate with--that is, remain spatially near--other individuals. Instances of social isolation were rarely found.

In their relations with teachers, the vast majority of their groupings was with one teacher or two teachers. Most observed groupings were heterogeneous on the developmental status of the members. Homogeneous grouping on developmental status most often involved only nonhandicapped children. There is little in the

data to denote differential gender association patterns in this setting and sample.

On the basis of these data, there appears no reason to reject Hypothesis 1. For all intents and purposes, it appears, on the basis of the structural characteristics of the groupings observed, that handicapped and nonhandicapped children were physically integrated within the classroom.

Functional Characteristics

The contention was made earlier that this investigation was in reality a combination of two distinct, yet sequential, components of social integration. The initial hypothesis concerned whether or not there were differences in the structural characteristics of the groupings within the university-based model program. The data suggest not. In that program, the children, regardless of their developmental status, age, or gender, were found to participate in developmentally and sexually heterogeneous groupings with one or two teachers most of the time, at least at the initiation of each two-minute observational period. Rarely were instances of spatial isolation from other children found.

The next logical question would be, given such groupings, does social interaction therefore follow and, if so, what type and with whom. It is toward an understanding of these topics that the analyses now turn. It can be recalled that social interaction in this study was classified as either verbal or physical behavior which was emitted by a focal individual or directed toward him or her.

Total group. The beginning step in the analytic procedure determined the patterns of social contact for the university group overall. Of the more than 3,200 instances of social behavior by focal children that were observed, the preeminent mode was found to be verbal reception which constituted 49% of the observed occurrences. This was seconded by verbal gives (32%) followed by physical receives (11%) and physical gives (9%) (See Table 6). These findings indicate a domination of the verbal mode in classroom contact.

Eighty percent of the exchanges observed involved teachers. Only 15% of the total amount of the observed social behavior in the classroom was with peers. When the focal child was interacting with another child, he or she was most often doing so with a nonhandicapped male (9.5%) or a nonhandicapped female (4.4%). Handicapped females were involved less than 1% of the time, and there were few contacts (.5%) with developmentally delayed males by children.

Total social behavior. Analyses were then conducted to determine the relationship between child characteristics (developmental status, gender and age) and the total social behavior observed (with children and teachers). The results indicated that although the total amount of social interaction observed for handicapped and nonhandicapped children did not differ markedly (44% vs. 56%) (see Table 7), handicapped children were observed to be engaged in half as many verbal gives and almost twice as many physical receives as were nonhandicapped

Table 6

Total Frequency and Percentages of Social Behavior By Referent

Referent	Social Behavior									
	Verbal Give		Verbal Receive		Physical Give		Physical Receive		TOTAL	
Adult female	660	(20.6%)	1304	(40.4%)	175	(5.4%)	224	(6.9%)	2369	(73.3%)
Adult male	50	(1.5%)	132	(4.1%)	16	(0.5%)	26	(0.8%)	224	(6.9%)
Male child (non-handicapped)	117	(3.6%)	103	(3.2%)	35	(1.1%)	52	(1.6%)	307	(9.5%)
Female child (non-handicapped)	55	(1.7%)	26	(0.8%)	33	(1.0%)	28	(0.9%)	142	(4.4%)
Male child (handicapped)	6	(0.2%)	2	(0.1%)	5	(0.2%)	2	(0.1%)	15	(0.5%)
Female child (handicapped)	14	(0.4%)	2	(0.1%)	9	(0.3%)	6	(0.2%)	31	(1.0%)
Object	18	(0.5%)	0	(0.0%)	1	(0.1%)	0	(0.0%)	19	(0.6%)
Self	61	(1.9%)	1	(1.6%)	0	(0.0%)	0	(0.0%)	62	(1.9%)
Group	49	(1.5%)	12	(0.4%)	1	(0.1%)	0	(0.0%)	62	(1.9%)
TOTAL	1036	(32.1%)	1582	(49.0%)	275	(8.5%)	338	(10.5%)	3231	(100.0%)

Table 7

Frequency and Form by Referent of Social Contact by Handicapped and Nonhandicapped Children

		Adult Female		Adult Male		Male Child		Female Child		Male Child Delayed		Female Child Delayed		Non-Human		Self		Group		Raw Total	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Handicapped	Verbal Give[1]	246	17.4	17	1.2	21	1.5	13	0.9	6	0.0	4	0.3	5	.4	11	0.8	8	0.6	325	23.0
	Verbal Receive[2]	661	46.7	59	4.2	26	1.8	10	0.7	0	0.0	0	0.0	0	0.0	0	0.0	8	0.6	764	54.0
	Physical Give[3]	90	6.4	10	0.7	8	0.6	11	0.8	0	0.0	3	0.2	0	0.0	0	0.0	0	0.0	122	8.6
	Physical Receive[4]	141	10.0	15	1.1	25	1.8	18	1.3	0	0.0	4	0.3	0	0.0	0	0.0	0	0.0	203	14.4
	Column Total	1138	80.5	101	7.1	80	5.7	52	3.7	6	0.0	11	0.8	5	.4	11	0.8	16	1.2	1414	100.0
Nonhandicapped	Verbal Give[1]	412	23.1	33	1.8	96	5.4	42	2.4	6	0.3	10	0.6	13	0.7	50	2.8	41	2.3	703	39.4
	Verbal Receive[2]	627	35.1	73	4.1	75	4.2	16	0.9	1	0.1	2	0.1	0	0.0	1	0.1	4	0.2	799	44.8
	Physical Give[3]	81	4.5	6	0.3	27	1.5	22	1.2	5	0.3	6	0.3	1	0.1	0	0.0	1	0.1	149	8.3
	Physical Receive[4]	83	4.6	11	0.6	26	1.5	10	0.6	2	0.1	2	0.1	0	0.0	0	0.0	0	0.0	134	7.5
	Column Total	1203	67.4	123	6.9	224	12.5	90	5.0	14	0.8	20	1.1	14	0.8	51	2.9	46	2.6	1785	100.0

children (χ^2 = 115.5, df = 3, $p < .01$). The two groups did not differ on verbal receives and physical gives.

Analyses for the effects of gender indicated that male and female target children engaged in an equivalent amount of social behavior (see Table 8) but that males were more often observed in verbal gives while females were more often observed to be the recipients of verbal and physical behavior overall (χ^2 = 52.4, df = 3, $p < .01$).

The younger children accounted for the majority of all social behavior observed (89.6%) and this usually took the form of a verbal receive (48%). The difference between the age groups was significant (χ^2 = 58.4, df = 3, $p < .01$) (see Table 9).

Teacher/child interactions. The preponderance of teacher-child contact was examined in light of the factors of developmental status, gender, and age alone and in combination. It was determined that for nonhandicapped children the percentages were 87% to teachers and 13% to children, respectively. When interacting with teachers handicapped children were observed to engage in fewer verbal gives and more physical receives than their nonhandicapped counterparts (Table 7) (χ^2 = 60.7, df = 3, $p < .01$). Females were more likely to be the recipients of behavior, particularly physical behavior (χ^2 = 26.8, df = 3, $p < .01$) (Table 8). Younger children were often observed in interaction with the teacher. In such cases they were the recipient of teacher verbal or physical interaction 63.6% of the time (χ^2 = 43.3, df = 3, $p < .01$) (Table 9). Follow-up regression analyses indicated significant interaction effects of the child characteristics for

Table 8

Frequency and Percent of the Form and Referent of Social Contact by Males and Females

		Adult Female		Adult Male		Male Child		Female Child		Male Child Delayed		Female Child Delayed		Non-Human		Self		Group		Raw Total	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Males	Verbal Give[1]	343	21.9	34	2.2	82	5.2	32	2.0	3	0.2	4	0.3	15	1.0	45	2.9	33	2.1	591	37.7
	Verbal Receive[2]	574	36.6	68	4.3	65	4.1	14	0.9	1	0.1	2	0.1	0	0.0	1	0.1	5	0.3	730	46.5
	Physical Give[3]	73	4.7	5	0.3	25	2.6	12	0.8	1	0.1	3	0.2	1	0.1	0	0.0	1	0.1	121	7.7
	Physical Receive[4]	76	4.8	14	0.9	25	1.6	9	0.6	0	0.0	3	0.3	0	0.0	0	0.0	0	0.0	127	8.1
	Column Total	1066	67.9	121	7.7	197	12.6	67	4.3	5	0.3	12	0.8	16	1.0	46	2.9	39	2.5	1569	100.0
Females	Verbal Give[1]	315	19.3	16	1.0	35	2.1	23	1.4	3	0.2	10	0.6	3	0.2	16	1.0	16	1.0	437	26.8
	Verbal Receive[2]	714	43.8	64	3.9	36	2.2	12	0.7	0	0.0	0	0.0	0	0.0	0	0.0	7	0.4	833	51.1
	Physical Give[3]	98	6.0	11	0.7	10	0.6	21	1.3	4	0.2	6	0.4	0	0.0	0	0.0	0	0.0	150	9.2
	Physical Receive[4]	148	9.1	12	0.7	26	1.6	19	1.2	2	0.1	3	0.2	0	0.0	0	0.0	0	0.0	210	12.9
	Column Total	1275	78.2	103	6.3	107	6.6	75	4.6	9	0.6	19	1.2	2	0.1	16	1.0	23	1.4	1630	100.0

Table 9

Frequency and Percent of the Form and Referent by Social Contact by Older and Younger Children

		Adult Female		Adult Male		Male Child		Female Child		Male Child Delayed		Female Child Delayed		Non-Human		Self		Group		Raw Total	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Three years of age	Verbal Give[1]	625	21.6	50	1.7	116	4.0	52	1.8	6	0.2	14	0.5	15	0.5	61	2.1	48	1.7	987	34.1
	Verbal Receive[2]	1118	38.6	131	4.5	97	3.4	26	0.9	2	0.1	2	0.1	0	0.0	1	0.1	12	0.4	1389	48.0
	Physical Give[3]	142	4.9	16	0.6	32	1.1	32	1.1	5	0.2	8	0.3	1	0.0	0	0.0	1	0.0	237	8.2
	Physical Receive[4]	178	6.1	26	0.9	44	1.5	28	1.0	2	0.1	4	0.1	0	0.0	0	0.0	0	0.0	282	9.7
	Column Total	2063	71.3	223	7.7	289	10.0	138	4.8	15	0.5	28	1.0	16	0.6	62	2.1	61	2.1	2895	100.0
Four years of age	Verbal Give[1]	41	12.2	0	0.0	1	0.3	3	0.9			0	0.0			3	0.9	1	0.3	49	14.6
	Verbal Receive[2]	186	55.4	1	0.3	6	1.8	0	0.0			0	0.0			0	0.0	0	0.0	193	57.4
	Physical Give[3]	33	9.8	0	0.0	3	0.9	1	0.3			1	0.3			0	0.0	0	0.0	38	11.3
	Physical Receive[4]	46	13.7	0	0.0	8	2.4	0	0.0			2	0.6			0	0.0	0	0.0	56	16.7
	Column Total	306	91.1	1	0.3	18	5.4	4	1.2			3	0.9			2	0.9	1	0.3	336	100.0

handicapped males ($F = 12.62$, $p < .01$) and handicapped older children ($F = 2.70$, $p < .05$).

Child/child interactions. Analyses of peer interactions indicated handicapped children interacted verbally (both gives and receives) significantly less often than did nonhandicapped children. They were also observed to engage in fewer physical gives with other children ($\chi^2 = 34.6,$, $df = 3$, $p < .01$) (Table 7). Males were engaged in more verbal interactions than females ($\chi^2 = 13.8$, $df = 3$, $p < .01$) (Table 8) and younger children were observed more often in interaction with other children than were older children ($\chi^2 = 11.1$, $df = 3$, $p < .05$) (Table 9). Covariate analyses indicated a significant developmental status by sex interaction ($F = 6.78$, $p < .01$) and a significant gender by age in interaction ($F = 2.79$, $p < .05$). The overall multiple R, including main effect and first order interaction terms was, $R = .30$ ($F = 9.95$, df 6,488, $p < .01$). The data indicate that handicapped males were engaged in less overall social behavior. The data also show that young males engaged in more verbal behavior, older females more physical receives. Further nonhandicapped males were involved in more verbal behavior (gives and receives) while handicapped females were principally the recipients of physical behavior from other children.

Classroom social matrix. The social matrix of the classroom is a reflection of who interacts with whom. In this university model program these interactions were observed to be primarily with teachers. Analysis of the dispersions of social contact with adults, as contrasted to that with peers, indicated that

handicapped children interact significantly more often with teachers ($\chi^2 = 87.8$, df = 1, $p < .01$) (Table 7). Males were found to contact peers to a greater degree than would be expected ($\chi^2 = 39.4$, df = 1, $p < .01$) (Table 8), while older children were observed to engage in greater amounts of teacher-child exchanges ($\chi^2 = 28.4$, df = 1, $p < .01$) (Table 9).

Interestingly, it was found that, although no significant differences obtain for contacts by handicapped and nonhandicapped children with male or female teachers, a small but statistically significant relationship did apply for gender. Males had contact with male teachers more often ($\chi^2 = 5.9$, df = 1, $p = .0182$) (Table 8). However, it is age that seemingly makes a greater impact. Four year olds were more involved with adult females ($\chi^2 = 29.3$, df = 1, $p < .01$) (Table 9).

Child-child contact, when it occurred, presented a picture wherein nonhandicapped children were more than twice as active as their handicapped classmates. When they were engaged it principally occurred with nonhandicapped males. Chi-square analysis revealed a statistically significant relationship between developmental status and the type of peer with whom a focal individual had contact ($\chi^2 = 11.4$, df = 3, $p < .01$) (Table 7). It was determined that handicapped children interacted with nonhandicapped males significantly less often.

Gender was also found to be influential in peer relations. Females were in less contact with nonhandicapped males ($\chi^2 = 19.9$, df = 3, $p < .01$) (Table 8). The factor of age did not exceed the predetermined alpha level.

In summary then, functional characteristics (form and referent) were identified as being differentially related to the child factors of developmental status, gender and age. The primary pattern of verbal receives, verbal gives, physical receives and physical gives which characterized the classroom as a whole was found to differ in magnitude for handicapped and nonhandicapped, males and females, and younger and older children.

Contacts with teachers were greater than those with peers, again, with verbal receives being predominant. Handicapped children received more physical behavior from teachers. Female and younger children received greater amounts of both verbal and physical behavior from these adults.

Peer interaction consumed a fourth or less of the amount of social behavior exhibited from or to focal children. This was characterized by less verbal behavior by the handicapped children, but more verbal interactions by males and younger children. Verbal giving was the most frequently utilized of the social modes among the children in contrast to that exhibited with teachers. It was the nonhandicapped males with other nonhandicapped males who contributed most to classroom social activity among the young participants.

Given these results, it must be contended that the second hypothesis concerning no differences in social interaction as measured by verbal and physical gives and receives to specific classes of individuals within an integrated university model preschool program cannot be supported. Indeed, differences relative to the factors of developmental status, age and gender of

the observed child were found to be significantly related to the form and especially to the co-actor of social contact.

Conclusions

A variety of conclusions can be drawn from these data. First in the order in which they were addressed is the topic of proximity. It was found that all children in this demonstration program were proximal to other participants, both teachers and peers.

In the case of the former this most usually meant one or two adults were included in the group of which the focal child was a member. This was found to be true for both handicapped and nonhandicapped male and female children. There were no statistically significant differences relative to teacher inclusion as a function of the age, gender or developmental status of the child.

Developmental association, or grouping with other children based upon their developmental status, was predominantly heterogeneous in nature. That is, the vast majority of congregations of which the target child was a member involved both handicapped and nonhandicapped individuals. This was particularly true when the child being observed was handicapped, especially if that child was a handicapped male. In those less frequent instances where children played together in groups containing developmentally similar peers the child being focused upon was more usually older and normal rather than handicapped.

Sexual association, or self-inclusion in groups where gender is the basis for analysis, was considered next. Here it was found

that heterogeneous groupings, that is associating with both boys and girls, was the more prevalent pattern. In addition, this was seemingly not influenced by age, gender or developmental status. In those cases where same sex groupings were found, females were significantly the more likely candidates.

Social isolation was rarely observed. In the few instances where children were not with their classmates it was the older handicapped males who were involved.

In relation to social interaction, both its form as well as the referent individual were analyzed. It was found that verbal modes of interaction far outweighed physical ones, even for the youngest children.

Teachers were significantly more likely to be the referent of social contact and for the children in this university model program this meant that the teachers were directing comments to them more often than the reverse. This was especially true for the handicapped students in contrast to their normally developing classmates and for young females as compared to young males.

Results of the covariate analysis confirmed that the overall impact of the variables of developmental status, age and gender was significantly related to social behavior. Several interactions were also found. Developmentally delayed older females were the most interactive with adults. When these factors were combined one with one other this too resulted in significant findings overall. Here age and developmental delay along with being a handicapped male were the influential factors.

Even though their interactions with other children comprised a far smaller proportion of their social repertoire some interesting differences were found. Verbal gives with classmates were observed more often than verbal receives for the normal children. Verbal receives, however, were the most common form of social contact for the handicapped males. Interestingly physical receives from other children were the most foremost method of contact for the handicapped females.

No matter who was the target child of the observation in this program, the other child involved in the social encounter was usually a normally developing male. Normal females were the second highest category of young individual which was found in interactions. Thus, normal children were far more frequently the referent of any social contact among students and always gave or received behavior in greater amounts than that exhibited toward or received by the handicapped children. Contacts by focal children with handicapped males was almost nonexistent in this sample.

Child-child interchanges were significantly related to the factors of age, gender and developmental status overall. When the three factors were combined with one another, it was the young handicapped males who accounted for the least social activity with their classmates.

The term peer has been pervasive throughout the literature on social behavior of young children, and confusion as to the meaning of the term is inherent there. Peer has been used to indicate equality of chronological age as evidenced by the fact that peer and agemate have been utilized interchangeably to refer to the

same phenomenon (Lewis, Young, Brooks, & Michalson, 1975; Yarrow, 1975).

An alternative connotation of peership includes the consideration of persons sharing parallel levels of maturation and functioning. In reference to this point, Ray (1974) has found that children seem to prefer to interact with children who function at a similar developmental level. Hulme and Lunzer (1966) used a similar hypothesis as the foundation for their successful therapeutic efforts. Therefore, persons defined as peers, using this definition, might vary from situation to situation depending upon the skills that are of importance within a given context. It is true that the factor of age may enter into this definition. Under such circumstances, age would be more correctly conceived of as a marker variable. The critical component here is a functional one, the sharing of abilities. Since the ability to succeed in certain activities or tasks assumes priority, the possibility exists that peers may vary in age.

A sensitivity to this issue of functional peers resulted in the selection of nonhandicapped children three years of age or under to serve as behavioral models for the university program. Since there were but two nonhandicapped children who were four years of age or older, the results described throughout this study are essentially a comparison of functional peers. To review the results, this meant the inclusion, to a significant degree, of unanticipated numbers of handicapped children in heterogeneous developmental groups degree. Older handicapped children were more

often in social isolation from their classmates, and were less involved in verbally giving to other children. They interacted significantly more with their teachers and less with classmates, but if they were in social contact with other children, it was inordinantly with normal nonhandicapped females.

Thus, although there were a number of dimensions along which both handicapped and nonhandicapped children were similar, there existed several components of behavior on which they differed. It is these differences that require further attention and will be addressed in the subsequent study.

Given these data, a major objective of the mainstreaming legislation has been realized if social proximity is the singular measure upon which this judgment about developmental integration is made. However, closer inspection indicates that, even though social proximity (as measured by the developmental heterogeneity of the children's groups) was found, the patterns of social contact do not support this contention. Indeed, the social interchange among young classmembers was primarily the province of the young normally developing classmembers. Rarely were the developmentally delayed individuals, especially the males, observed to be the recipients or providers of social contacts in this context. If one remembers that child-child interactions constitute a minimal component of the social climate of this model program, this becomes an even more damning fact.

In this university environment the adults are the predominant orchestrators of the social environment. They structure the

social contacts in this classroom even during the free play time that was the focus of observation.

The question then becomes whether the patterns of social intercourse descriptive of this particular university demonstration program, given its requirements of service to clients, research and the generation of knowledge, along with the training of professionals, are typical of developmentally integrated programs in general. Or are these findings unique to this particular setting? In order to address these issues the following extension into seven community classrooms was designed.

CHAPTER IV

STUDY II

Purpose

Patterns of social transaction among young developmentally deviant children and their normally developing classmates in seven community based integrated preschool classrooms formulated the basis for the subsequent investigation. This study was viewed as the second stage in a systematic movement through extended validation to prescription. The initial, exploratory study was undertaken in a university-based model integrated preschool. This second community-based study attempted to verify the patterns of social contact delineated in the first study.

Introduction and Overview

The integration of children experiencing difficulties in their physical and social development into educational programs containing children who are developing in a normal fashion has become a reality. Yet, to date, there is little information concerning the effects such integration may have on the transactional structure of the social network within the classrooms and on the children themselves.

For normal children age (Garvey & Hogan, 1973; Gottfried & Seay, 1974; Hartup, 1970) and gender (Berk, 1971; McGrew, 1972; Reuter & Yunick, 1973) differentially affect the exhibition of social behavior. Whether these factors impact to the same degree and in the same manner for children experiencing developmental dysfunction is less well-known (Wegley-Brown, 1979). Yet the normalization of the developmental experience for these children

remains the primary goal of recent legislative mandates (P.L. 94-142, Federal Register, 1977).

Statement of the Problem

The purpose of this study was to determine the structural characteristics of the social contacts that occurred within seven developmentally integrated preschool classrooms. Social contacts were observed between children, and between children and their caregivers. As in the prior study, functional analyses were made utilizing the form and frequency of social interaction and the factors of age, gender, and developmental status. Data were collected in the seven community-based classrooms comprising the Huntingdon County Child Development Program. As before, an assessment of whether differential patterns of social interaction obtain for children who are developmentally deviant will be of special concern.

The general hypotheses that were tested, in the null form, were:

1) There are no significant differences in the structural characteristics of classroom groups in which children varying on developmental level, gender and age participate within seven community-based preschool settings.

2) There are no significant differences in the functional interaction patterns observed for children varying on developmental level, gender, and age within seven community-based preschool settings.

Although the literature cited suggests the potential for differences, the null form of the hypotheses represents the operational ideal for such integrated programs.

Methods

Sample

Participants in this study included 105 male and 60 female children, whose ages ranged from two to five, attending one of seven community-based developmentally integrated preschool classrooms located in rural Pennsylvania. Their teachers were also involved. The sub-sample of children identified as experiencing atypical development numbered 36. This was composed of 24 males and 12 females. They previously had been diagnosed by professional staff as delayed in the areas of speech and communication, mental retardation, cerebral palsy, emotional disturbance, or physical handicap.

Sample Recruitment

Contact with the director of the Huntington County Child Development Program was made, initially, by telephone to assure their participation. A meeting was arranged subsequently with the educational director, head teachers, and social workers to explain the purpose and procedures of the investigation. The second purpose of this contact was to assure the staff as to the non-intrusive nature of the study and the absence of any components which would require additional effort on their part. Information was gathered concerning child characteristics from the social workers from each center, and a time was arranged to commence observation.

Settings

The seven classrooms comprising the Huntington County Child Development Program were located in four communities within a radius of twenty miles of Huntington, PA. The order by size were Petersburg, Orbisonia, Mount Union with Huntington being the largest. These programs were also behaviorist in nature being an outreach site for the previously described university program.

Observer Training

The training of observers was accomplished in a manner similar to that described in Study 1. The same reliability standards were met. The primary difference was that the training of observers took place in the university setting. Thus, the familiarity with the children was delayed until the time of the actual field observations.

Procedures

Upon entering the field classrooms for the first time, the observers stationed themselves in a relatively unutilized section of the room. The teachers were asked to invite a few children at a time to be introduced. The research staff then presented each child with a name tag, color-coded according to prespecified categories differentiated upon the child characteristics of gender and developmental status. The children were then allowed to become familiar with the equipment, depressing the numbered keys and observing the digital display. After this had been accomplished, the children were encouraged to return to their classroom activities. After all children had been contacted, the observers unobtrusively began their data collection.

Focal individuals were located, and group parameter data were entered. Each two-minute session was initiated utilizing the Interact code described in Study 1. Upon completion of the observational interval, a new target child was determined and a repetition of the sequence was accomplished.

Data Analysis

As with Study 1, a description of the frequency and form of the observed social interaction patterns was made. Intercategory comparisons between developmentally delayed and normal children will be the primary focus here as well.

Results and Discussion

Classroom Composition

A comparison of the population parameters and the observational samples which were collected formulates the initial component in the data analysis section of this replication. Within the seven community sites there were one-hundred and five males constituting 64% of that population. This contrasted with the sixty females who made up 36%. The proportions of observational periods classified by gender were 63% for males and 36% for females.

In terms of developmental status the participants included one-hundred and twenty-nine normal children with thirty-six developmentally delayed individuals. The proportions were .78 and .22 respectively. The observations divided into 67% for normal and 32% for handicapped children.

There were fifty-one children who were less than three years of age while forty-four were four years old and sixty-six were

aged five years or more. This resulted in 33% of the children being in the youngest group, 27% in the middle age group and 51% were the oldest children. The observational data included 28% of the periods focusing on the youngest, 24% on the four-year-old children and 47% on the oldest.

The focal individual for each observational segment was chosen on a random basis and the comparisons between the population percentages on the categories and those percentages found in the observational sample reflect this fact. The gender makeup was the most closely matched, but the proportions for both developmental status and age are well within the tolerance limits.

A statistical analysis was performed in order to assess whether specific characteristics of the children in the community programs were differentially represented in the observations. There were no statistically significant relationships found between developmental status and sex. However, the analysis relating development status to age revealed that a statistical relationship did exist ($p=.039$). An inspection of the deviations from the proportional values clearly indicates that the male handicapped five year olds were disproportionately represented as were three-year-old females ($p=.037$).

Structural Characteristics

Hypothesis 1 stated:

There are no significant differences in the structural characteristics of classroom groups in which children varying on developmental level, gender and age participate within the community based settings. Structural characteristics were defined

in terms of teacher associations, developmental associations, and gender associations. The hypothesis was tested by means of a series of chi-square and covariate analyses.

Teacher association. For the participants in the community setting the frequency and percentages of observed groupings with teachers were cross-tabulated with developmental status, gender and age in Table 10. For the majority of the observations children were included in groups with zero or one teacher (93%) contingencies between the child variables and teacher presence. Further handicapped individuals were involved less often than would be expected in groups containing a single teacher but were more likely to be in groups with two adults ($\chi^2 = 8.48$, $df = 3$, $p < .05$). Neither significant main effects for age or gender nor interaction effects obtained.

Children who were not found to be near other children were also of interest. When these rare instances of isolate behavior occurred most often neither teachers nor other children were in the area. Only twice was a teacher in attendance. Further, eleven of the twelve cases of social isolation (92%) involved handicapped children. A statistically reliable relationship exists between isolate behavior and the number of teachers a child is near. When children were not with their peers, they were not with a teacher either ($\chi^2 = 9.29$, $df = 3$, $p = .026$).

To summarize this section on association with teachers, it was noted that both handicapped and developmentally typical youngsters were observed most often in groups with one adult. Next most likely were groups without any teachers. However, these

Table 10

Frequency and Percent of Social Proximity to Teachers by Handicapped and Nonhandicapped Males and Females of Varying Ages

			0		1		2		3	
			f	%	f	%	f	%	f	%
Handicapped	Male	3	6	11.3	8	15.1	1	1.9		
		4	8	4.5	2	3.6	0	0.0		
		5	22	18.2	24	19.8	7	5.8		
	Female	3	3	6.1	3	6.1				
		4	5	15.2	10	30.3	4	12.1		
		5	7	14.0	6	12.0	2	4.0		

Table 10 Continued

			0		1		2		3	
			f	%	f	%	f	%	f	%
Nonhandicapped	Male	3	14	26.4	22	41.5	2	3.8		
		4	17	30.9	24	43.6	4	7.3		
		5	28	23.1	39	32.2	1	.8		
	Female	3	17	34.7	24	49.0	1	2.0	1	2.0
		4	3	9.1	10	30.3	1	3.0		
		5	18	36.0	15	30.0	2	4.0		

groupings were not differentiated according to developmental status, gender or age.

Developmental association. Self-inclusion in play groups by children based upon their developmental status was the second facet of the association question to be addressed. Here heterogeneity (dissimilarity of developmental stature) and homogeneity (similarity of developmental stature) were the focus of analysis. For the group as a whole both types of association were found almost equally (49% heterogeneous, 51% homogeneous) as can be seen in Table 11. Chi-square analysis indicated no significant effects of gender. However, both the developmental status and age of the focal child were found to be related to being included in playgroups containing children who were alike in developmental status and groups where participants were both developmentally similar and dissimilar.

Nonhandicapped children were observed to associate heterogeneously in 44% and to associate homogeneously in 25% of the observed occasions. This was compared to heterogeneous (25%) and homogeneous (2%) groupings for their handicapped classmates. A significant relationship ($\chi^2 = 51.29$, $df = 1$, $p < .01$) between developmental status and type of play group was found, with the handicapped students being more often than expected involved in heterogeneous groupings.

Age, too, was found to be influential relative to group composition ($\chi^2 = 19.19$, $df = 2$, $p < .01$). The youngest children, three years of age or less, were inordinately grouped with developmentally similar classmates. Indeed, 20% of the overall

Table 11

Frequency and Percent of Developmental Associations

For Handicapped and Nonhandicapped

Males and Females of Varying Ages

			Heterogeneous		Homogeneous	
			f	%	f	%
Handicapped	Male	3	9	17.0	6	11.3
		4	7	12.7	3	5.5
		5	44	36.4	9	7.4
	Female	3	3	6.1	3	6.1
		4	15	45.5	4	12.1
		5	14	28.0	1	2.0
Nonhandicapped	Male	3	12	22.6	26	49.1
		4	23	41.8	22	40.0
		5	25	20.7	43	35.5
	Female	3	8	16.3	35	71.4
		4	6	18.2	8	24.2
		5	13	26.0	22	44.0

classroom data applied to these children as compared to 10% for the four year olds and 21% for the fives. Heterogeneous associations were found a mere 9% for the threes, 15% for the four-year-olds and 25% for the oldest children.

Covariate analysis resulted in the identification of a significant overall relationship between the type of association and the factors of interest. For heterogeneous association this was an F of 24.89 ($df = 3,357$, $p < .01$) and a multiple $R = .42$ ($df = 3,357$). Delayed developmental status ($F = 62.60$, $df = 3,357$, $p < .01$) and older age ($F = 5.62$, $df = 3,357$, $p < .01$) were the contributing factors. First order interactions were found for developmental status and age ($F = 3.58$, $df = 6.354$, $p < .01$) and sex and age ($F = 2.96$, $df = 6,354$, $p < .01$). These analyses indicated that older, handicapped children and older females were more likely to be found in developmentally heterogeneous groupings ($R = .43$, $df = 6,354$, $p < .01$).

Homogeneous grouping also was found to be related to the three factors overall ($R = .44$; $F = 20.64$, $df = 3,357$, $p < .01$). Here normal status ($F = 74.56$, $df = 3,357$, $p < .01$) and young age ($F = 4.20$, $df = 3,357$, $p < .01$) were the influential child characteristics. A first order interaction between sex and age was also obtained ($F = 3.52$, $df = 6,354$, $p < .05$) with a multiple $R = .45$ ($df = 6,354$). This indicated that older males were more likely to be with developmentally similar individuals. Thus proximity with peers of similar developmental status seems to be influenced most by developmental status and age. When handicapped

children were observed they were most likely to be in proximity to groups of children of mixed developmental status.

Gender association. Similar analyses were performed to determine whether children differentially associated in playgroups according to the gender composition of that group. As may be seen in Table 12 no significant relationships were found for the factors of developmental status or age. Thus, being handicapped or nonhandicapped, three, four or five years of age did not relate to a child's inclusion with others of the same or dissimilar sex. However the child's own gender was significantly related to heterogeneous (dissimilar) or homogeneous (similar) groupings (χ^2 = 17.85, df = 1, $p < .01$). The overall percentages were, for males, 34% in heterogeneous groups and 30% in homogeneous groups while females were observed in heterogeneous groups 29% of the time, homogeneous groups on gender 8% of the time. Thus, females were more often observed in groups containing both boys and girls.

This was confirmed in the covariate analyses. It was found that significant relationship exists overall (F = 6.99, df = 3,357, $p < .01$) between heterogeneous association and the factors of developmental status, gender and age. The multiple R = .24 (df = 3,357). Being a member of the female gender was the only factor to make a significant contribution to the equation (F = 19.62, df = 3,357, $p < .05$). None of the interaction terms were significant.

Homogeneous grouping was also found to be influenced by certain child characteristics (R = .28; F = 10.36, df = 3,357, $p < .01$, Here normality (F = 3.64, df = 3,357, $p < .01$) and being a

Table 12

Frequency and Percent of Gender Associations

For Handicapped and Nonhandicapped Males and Females

of Varying Age Levels

			Heterogeneous		Homogeneous	
			f	%	f	%
Handicapped	Male	3	6	11.3	9	17.0
		4	7	12.7	3	5.5
		5	27	22.3	26	21.5
	Female	3	3	6.1	3	6.1
		4	16	48.5	3	9.1
		5	12	24.0	3	6.0
Nonhandicapped	Male	3	22	41.5	16	30.2
		4	24	43.6	21	38.2
		5	33	27.3	35	28.9
	Female	3	32	65.3	11	22.4
		4	11	33.3	3	9.1
		5	26	52.0	9	18.0

boy ($F = 23.55$, $df = 3,357$, $p < .01$) were found to be the important factors. No significant interactions were obtained.

Therefore, it can be concluded that female children tended to congregate in mixed sex groups. Males, more often than females, were observed in heterogeneous gender groups although they choose almost as often same-gender playmates. Non-handicapped children were most often observed in mixed gender groups.

Isolate association. In 11 of the 12 cases where children were observed in social isolation the focal child was developmentally delayed. Eight of these were males while three were females. Only a single instance involved a normal three-year-old female.

Thus the youngest children were significantly ($p < .05$) more often observed to be the socially isolated person in these classrooms, especially if they were also handicapped. It should be remembered, however, that such isolate behavior was observed on less than 1% of the total observations.

Conclusions. To summarize the findings so far from this study on social integration into community settings, it was found that these children associated in groups containing one teacher most often (52%). They were without a teacher in 41% of the cases. These findings apply to both the normal and handicapped students.

Nonhandicapped children were most often observed with other nonhandicapped children, while handicapped children were most often observed in groupings mixed on developmental status. The

age of the child was also a contributing factor. The youngest children were more likely to be in proximity with children of similar developmental status than were the oldest children.

Homogeneity of grouping based on gender when found, was more frequent for males.

Isolate behavior or distancing from other children was found primarily when there were no teachers near the focal child. In addition the few instances observed usually involved handicapped children.

These data, though suggestive, provide insufficient evidence for rejecting the first hypothesis. That is, as far as proximity goes, the handicapped children in these classrooms appear to be integrated.

Functional Characteristics

In this document it has been argued that social proximity is a necessary but insufficient determinant of successful mainstreaming. Thus the second component in this examination of social integration in developmentally integrated preschool classrooms in community settings is a description of the patterns of social contact. Specifically, the hypothesis tested was that no differences exist in the functional characteristics of social interaction across the dimensions of child developmental status, gender or age.

Total group. Total analysis of the modes of social contact in the overall program (across classrooms) indicated verbal gives to the most frequent behavior observed (43%). This was followed by verbal receive (40%), physical receive (10%) and physical give

(7%). These types of social behavior were observed with teachers (35%) and with children (57%). (See Table 13). The remainder of the behaviors were directed to and from inanimate objects, one's self or a group of two or more individuals.

Since the children in the community programs interacted with other children more frequently than they did with teachers, examination of the frequency of particular modes of social contact with peers is discussed first.

Children interacted with other children verbally most frequently. They spoke to other children in 56% of the cases and to teachers in 36% of the instances. Children received contact from other preschoolers in 54% of the observed occasions. Thus children gave verbal behaviors to other children more often than they received from them. With teachers the reverse was true, the adults directed more verbal contacts to the children than the children directed to them.

The third most frequent form of social contact in the overall classroom was that of physical receives. Here, too, the children were touched by teachers less than they were touched by other children (43% versus 57%).

The difference between the children's behavior with other children and their exchanges with teachers was most obvious when they were giving physical behaviors. Seventy-four percent of physical gives were directed toward peers while only 18% went to teachers.

Nonhandicapped male children were most often the recipients of all forms of behavior.

Table 13

Frequency and Form by Referent of Social Contact for Handicapped and Nonhandicapped Children

		Adult Female		Adult Male		Male Child		Female Child		Male Child Delayed		Female Child Delayed		Non-Human		Self		Group		Raw Total	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Handicapped	Verbal Give[1]	161	11.9	5	0.4	109	8.1	49	3.6	53	3.9	57	4.2	0	0.0	70	5.2	9	0.7	526	39.0
	Verbal Receive[2]	289	21.4	5	0.4	95	7.0	53	3.9	38	2.8	50	3.7	0	0.0	0	0.0	1	0.1	536	39.7
	Physical Give[3]	16	1.2	1	0.1	54	4.0	18	1.3	13	1.0	11	0.8	0	0.0	0	0.0	0	0.0	113	8.4
	Physical Receive[4]	87	6.4	1	0.1	55	4.1	13	1.0	6	0.4	13	1.0	0	0.0	0	0.0	0	0.0	175	13.0
	Column Total	553	41.0	12	0.9	313	23.2	133	9.9	110	8.1	131	9.7	0	0.0	70	5.2	10	0.7		
Non-handicapped	Verbal Give[1]	335	11.3	11	0.4	473	16.0	199	6.7	60	2.0	31	1.0	27	0.9	141	4.8	44	1.5	1321	44.7
	Verbal Receive[2]	448	15.2	21	0.7	435	14.7	172	5.8	56	1.9	21	0.7	8	0.2	0	0.0	0	0.0	1161	39.3
	Physical Give[3]	39	1.3	0	0.0	92	3.1	38	1.3	12	0.4	16	0.5	3	0.0	1	0.0	0	0.0	201	6.8
	Physical Receive[4]	104	3.5	0	0.0	98	3.3	45	1.5	14	0.5	12	0.4	1	0.0	0	0.0	0	0.0	274	9.3
	Column Total	926	31.3	32	1.1	1098	37.1	454	15.4	142	4.8	80	2.7	1	0.0	142	4.8	44	1.5	2957	100.0

Handicapped versus nonhandicapped. Analyses of the data for handicapped participants versus their nonhandicapped classmates identified significantly different patterns (χ^2= 23.38, df = 3, p < .01). For the nonhandicapped students the typical topography of social interaction involved verbal gives (45%), verbal receives (39%), physical receives (9%) and physical gives (7%). These children were more than twice as socially active as their handicapped peers, with verbal behavior (84%) being more frequently observed than physical behavior (16%). (See Table 13.)

Handicapped children were also more verbal (79%) than physical (21%) but interacted more with teachers and less with children than their nonhandicapped counterparts.

Most usually the handicapped participants were talked to by teachers (22%) rather than talking to them (12%), being touched by them (6%) or touching adults (1%). This pattern was reversed when they contacted or were contacted by other children. Here verbal gives (20%) occurred more frequently than verbal receives (17%). Unlike their nonhandicapped counterparts physical gives were next (7%) with physical receives last (6%). Nor did their choice of child referent parallel that of the nonhandicapped students. That is, they contacted normal males most (23%), then normal females (10%), handicapped females (9.7%), with handicapped males (8%) being the least contacted. Significant differences in peer referent were found (χ^2 = 184.54, df = 3, p < .01) showing that handicapped children have contact less often than expected with normal males.

The mode of contact between teachers and children was related to developmental status (χ^2 = 12.97, df = 3, p < .01). Handicapped children directed verbal comments less often to their teachers than did nonhandicapped children and handicapped youngsters more often touched their classmates.

Gender. Table 14 presents the patterns of social contacts by the gender of the target child. The overall patterns for males and females were similar. Indeed, chi-square analysis revealed no significant relationship between the mode of social contact and the gender of the focal child for their overall forms of social behavior, teacher-child interactions or child-child contacts.

When the referent of social interchanges was considered, however, it was found that a statistically significant relationship existed (χ^2= 328.68, df = 12, p < .01) between the gender of the focal individual and the target of social contact. Interaction between female target children and nonhandicapped males occurred less than would be expected. Additionally females were less involved with adults (χ^2 = 19.43, df = 12, p < .01) than were their male classmates. Further girls were interacting to a greater degree than would be expected with female teachers as opposed to male teachers (χ^2 = 13.68, df = 1, p < .01). Finally, females were found to more interact more often than would be expected with nonhandicapped females (χ^2 = 285.21, df = 3, p < .01).

Age. It was determined that the oldest children were the most active participants in the overall social interactions in the program (see Table 15). Chi-square analysis of these data

Table 14

Frequency and Percent by Referent for Social Contact by Gender of Target Child

		Adult Female		Adult Male		Male Child		Female Child		Male Child Delayed		Female Child Delayed		Non-Human		Self		Group		Raw Total	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Male	Verbal Give[1]	286	10.6	13	0.5	432	16.1	72	2.7	67	2.5	74	2.8	33	1.2	129	4.8	36	1.3	1142	42.4
	Verbal Receive[2]	414	15.4	24	0.9	399	14.8	86	3.2	68	2.5	52	1.9	11	0.4	0	0.0	1	0.0	1055	39.3
	Physical Give[3]	37	1.4	1	0.0	114	4.2	28	1.0	22	0.8	14	0.5	12	0.0	0	0.0	0	0.0	218	8.1
	Physical Receive[4]	110	4.1	0	0.0	107	4.0	23	0.9	18	0.7	13	0.5	1	0.0	0	0.0	0	0.0	272	10.1
	Column Total	847	31.5	38	1.4	1052	39.2	209	7.8	175	6.5	153	5.7	1	0.0	129	4.8	37	1.4	2687	100.0
Fe-males	Verbal Give[1]	210	13.0	3	0.2	150	9.3	176	10.9	46	2.8	14	0.9	0	0.0	82	5.1	24	1.4	705	43.5
	Verbal Receive[2]	323	19.9	2	0.1	131	8.1	139	8.6	26	1.6	19	1.2	0	0.0	0	0.0	0	0.0	642	39.6
	Physical Give[3]	18	1.1	0	0.0	32	2.0	28	1.7	3	0.2	13	0.8	0	0.0	1	0.1	0	0.0	96	5.9
	Physical Receive[4]	81	5.0	1	0.1	46	2.8	35	2.2	2	0.1	12	0.7	0	0.0	0	0.0	0	0.0	177	10.9
	Column Total	632	39.0	6	0.4	359	22.2	378	23.3	77	4.8	58	3.6			83	5.1	17	1.0	1620	100.0

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Table 15

Frequency and Percent by Referent of Social Contact for Children of Different Ages

		Adult Female		Adult Male		Male Child		Female Child		Male Child Delayed		Female Child Delayed		Non-Human		Self		Group		Raw Total	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Three year olds	Verbal Give[1]	180	14.2	0	0.0	112	8.8	84	6.6	11	0.9	8	0.6	0	0.0	89	7.0	9	0.7	516	40.7
	Verbal Receive[2]	279	22.0	2	0.2	114	9.0	70	5.5	15	1.2	8	0.6	0	0.0	0	0.0	0	0.0	493	38.9
	Physical Give[3]	22	1.7	0	0.0	39	3.1	18	1.4	4	0.3	10	0.8	0	0.0	1	0.1	0	0.0	97	7.7
	Physical Receive[4]	91	7.2	0	0.0	37	2.9	17	1.3	6	0.5	10	0.8	0	0.0	0	0.0	0	0.0	161	12.7
	Column Total	572	45.1	2	0.2	302	23.8	189	14.9	36	2.8	36	2.8	0	0.0	90	7.1	9	0.7	1267	100.0
Four year olds	Verbal Give[1]	149	11.8	6	0.5	170	13.4	59	4.7	45	3.6	54	4.3	0	0.0	61	4.8	12	0.9	556	43.9
	Verbal Receive[2]	211	16.7	10	0.8	157	12.4	64	5.1	36	2.8	48	3.8	0	0.0	4	0.4	0	0.0	530	41.8
	Physical Give[3]	14	1.1	1	0.1	31	2.4	14	1.1	10	0.8	11	0.9	0	0.0	0	0.0	0	0.0	81	6.4
	Physical Receive[4]	48	3.8	0	0.0	24	1.9	16	1.3	7	0.6	5	0.4	0	0.0	0	0.0	0	0.0	100	7.9
	Column Total	422	33.3	17	1.3	382	30.1	153	12.1	98	7.7	118	9.3	0	0.0	53	4.2	12	0.9	1267	100.0

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Table 15 Continued

		Adult Female		Adult Male		Male Child		Female Child		Male Child Delayed		Female Child Delayed		Non-Human		Self		Group		Raw Total	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Five year olds	Verbal Give[1]	167	9.4	10	0.6	300	16.9	105	5.9	57	3.2	26	1.5	0	0.0	69	3.9	41	2.3	775	43.5
	Verbal Receive[2]	247	13.9	14	0.8	259	14.6	91	5.1	43	2.4	15	0.8	0	0.0	0	0.0	5	0.3	674	38.0
	Physical Give[3]	19	1.1	0	0.0	76	4.3	24	1.4	11	0.6	6	0.3	0	0.0	0	0.0	0	0.0	136	7.7
	Physical Receive[4]	52	2.9	1	0.1	92	5.2	25	1.4	7	0.4	10	0.6	0	0.0	0	0.0	1	0.1	188	10.6
	Column Total	485	27.4	25	1.4	727	41.0	245	13.8	118	6.7	57	3.2	0	0.0	69	3.9	47	2.7	1773	100.0

indicate that the type of social contact was significantly related to age ($\chi^2 = 20.9$, df = 6, $p < .01$) with the four year old being touched by other participants much less often than might be expected.

Though child related contacts predominated, frequency of contacts with adults and other children was related to age ($\chi^2 = 90.1$, df = 2, $p < .01$), with the youngest children being involved in teacher-child interchanges to a greater degree than older children. These contacts tended to be with female adults ($\chi^2 = 22.1$, df = 2, $p < .01$). The mode of interaction with teachers differed little across age groups. For child-child interactions, however, verbal gives by the three year old participants to their peers occurred less frequently than expected ($\chi^2 = 26.4$, df = 6, $p < .01$). When the youngest children (three years of age) interacted with other children such contacts tended to occur more frequently with female peers.

A significant relation between the three factors of developmental status, age and gender was revealed through the use of an analyses of covariation ($R = .08$, df = 3,4427; $F = 10.83$, $p < .01$) using total social interaction as the dependent variable. Handicapped developmental status ($F = 28.11$, $p < .01$) and young age ($F = 4.95$, $p < .05$) were found to be influential. First order interactions between status and age ($F = 6.06$, $p < .01$) and sex and age ($F = 2.28$, $p < .05$) were identified when the factors were entered in combination. This means that young nonhandicapped children and older males were contributing most to the social

activity. Here the multiple R = .10 (df = 6,4424). It should be noted that this accounts for less than 1% of the variance.

Similar results were obtained when these analysis were computed for teacher-child social contact. A significant overall impact of the three factors ($F = 7.37$, $p < .01$) was found with handicapped status ($F = 12.99$, $p < .01$) and younger age ($F = 12.74$, $p < .01$) being the contributors. No interactions among the factors were found. The multiple R for main effects was R = .12 (df 3,1524) again representing little of the overall variance.

The results of the analysis for child-child contact indicated a significant status by age interaction ($F = 11.55$, $p < .01$). The overall multiple R, including main effects and first order interaction terms was R = .11 (df 6,2899). These data indicate that older children who are handicapped were contributing most to the little variability that was found.

The consideration of persons sharing parallel levels of maturation and function has been termed functional peer in this document. Ray (1974) found that children seem to prefer to interact with other youngsters who demonstrate a similar developmental level. Hulme and Lunzer (1966) had used this hypothesis as the foundation for their successful therapeutic efforts.

Recognition that a disparity in functional levels might influence the acquisition of new behaviors by handicapped children within a developmentally integrated setting led the originators of the university model program to selectively include nonhandicapped participants who were younger than their handicapped classmates;

that is, their peers in the functional sense. Therefore, it seems mandatory, at this point, to compare the youngest participants and the handicapped ones in the community sample. This will comprise the next task in these analyses.

Relative to their geographic proximity to teachers, it was found that handicapped children in the community program were more likely to be with no adults ($\chi^2 = 4.88$, df = 1, $p < .05$) or two teachers ($\chi^2 = 56.52$, df = 1, $p < .001$) than were their younger classmates. No significant differences were found in their inclusion in groups containing one teacher.

Handicapped children were more often in developmentally heterogeneous groups ($\chi^2 = 37.68$, df = 1, $p < .01$) while the younger children were in developmentally homogeneous aggregations ($\chi^2 = 18.32$, df = 1, $p < .001$). However, groupings with same sexed or opposite sexed peers were not significantly different for these developmentally diverse groups.

Handicapped children were significantly more socially active overall ($\chi^2 = 53.41$, df = 1, $p < .001$), both with teachers ($\chi^2 = 22.52$, df = 1, $p < .001$) and with other children ($\chi^2 = 34.44$, df = 1, $p < .0001$). These findings were identical to those obtained when the analysis was confined to social contact with normal males ($\chi^2 = 7.04$, df = 1, $p < .01$), with normal females ($\chi^2 = 11.56$, df = 1, $p < .001$), with handicapped males ($\chi^2 = 56.90$, df = 1, $p < .001$) and with handicapped females ($\chi^2 = 63.36$, df = 1, $p < .001$).

This cursory examination of the data has led to a number of conclusions. However, these should be tempered by the fact that the handicapped students are of varying ages while the comparison

group was not as diverse. That is, the youngest group is composed exclusively of normally developing three year old or younger children. Given these circumstances it may be that the true functional peer has yet to be determined. A closer examination would be a comparison between the five year old handicapped students with their four and then their three year old classmates in order to assess the match between patterns of social contact while controlling for a variety of factors. Indeed a comparison of children matched on gender and, perhaps, more importantly severity of handicapped, would appear to be the most informative manner in which to analyze these data. Initial steps toward this goal have already been completed.

Conclusions

Thus, a picture emerges, one of children who are more socially active with their peers than with their teachers. Differences in social contact were found to be dependent on age and gender.

Verbal gives were the prevalent mode of social contact, verbal behavior was exhibited in greater amounts than were physical responses, and nonhandicapped males were the primary partners in social exchanges.

This social activity is parallelled by the proximity data. Children in this community based study did maintain geographic closeness with fellow classmembers. These consistent findings lend credence to the conclusion that though the handicapped children were involved in integrated groupings and were socially involved, the social activity was selective and the patterns of

interaction differ somewhat from those of nonhandicapped children. The developmentally delayed children were less often engaged as initiators and targets of social contact. Hence, the finding of this study closely parallel those obtained in study 1.

CHAPTER V

PROGRAM COMPARISON

A comparison between the university model program and the community based effort comprised the next component in the examination of social integration in developmentally integrated preschool classrooms. Because the administration for the seven community based classrooms was the same they were considered to be one program for purposes of analysis.

Comparative analyses were made of social proximity, the types of social contact used, the relative reliance on a verbal or physical mode, the proportion of social behavior associated with teachers as opposed to peers, and the frequency of interaction with specific types of children.

Results and Discussion

Structural Characteristics

The first hypothesis to be tested, in the null form, was:

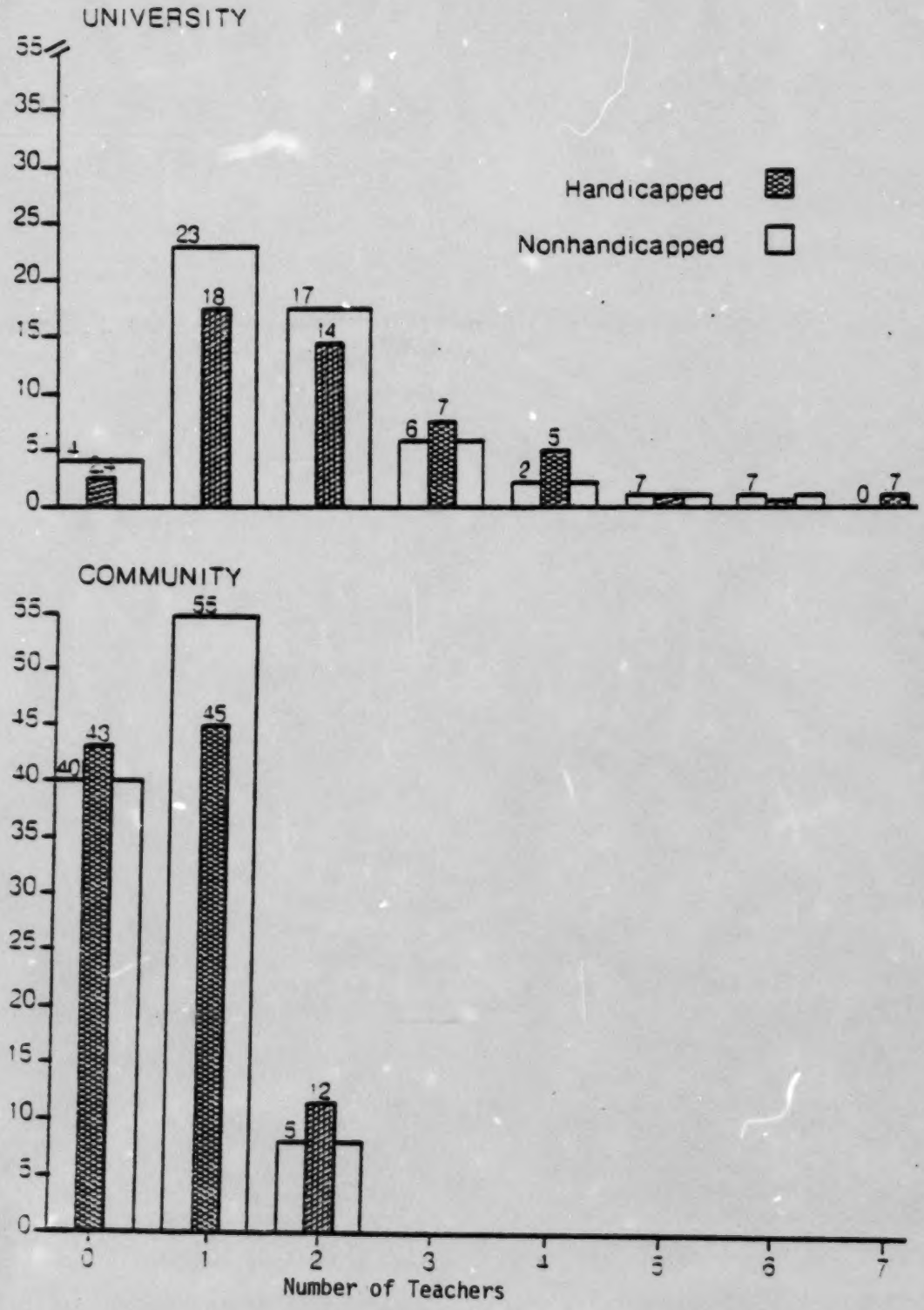
There are no significant differences between the university and community setting programs in the structural characteristics as measured by social proximity, of classroom groups in which children varying on developmental status, gender and age participate.

Proximity to teachers. When associating with teachers, students in the university program were involved in groups which included from zero to seven teachers. Instances were rare where as many as five or more adults were present; comprising less than 1% of the cases. Most observations found children with one or two adults. In contrast, for the community program, the number of

teachers located near children ranged from zero to three. Being with as many as three adults was rare here also (< 1%). The majority of observations included zero or one teacher (see Figure 1). It is important to keep in mind that, though fewer adults were generally available in the community settings than were available for the university program, usually there were five or more adults present in each classroom. Thus, in both situations the opportunity existed to be with a greater number of adults than was actually observed. Chi square analysis indicated that the children in the university setting were more likely to be in proximity with a larger number of adults (see Figure 1) than were the children in the community program ($\chi^2 = 204.6$, df = 7, $p < .01$).

Analyses of the relationships between developmental status, gender and age and proximity to teachers across the two programs to determine program by child characteristic interactions were performed. In the analysis of covariance, the combination of program and child characteristic variables produced a multiple R of .54 ($F = 64.5$, df = 4,643, $p < .01$). A sex by program interaction ($F = 1.184$, $p < .01$) and a four-way, sex x age x developmental status x program interaction ($F = 2.64$, $p < .01$) were found. In essence, females in the university program were more likely to be in proximity with a larger number of adults than were boys. More specifically, handicapped, young females in the university program were more likely to be in proximity with more adults.

Figure 1. Percent of Associations with Teachers by Handicapped and Nonhandicapped Children in University and Community Programs.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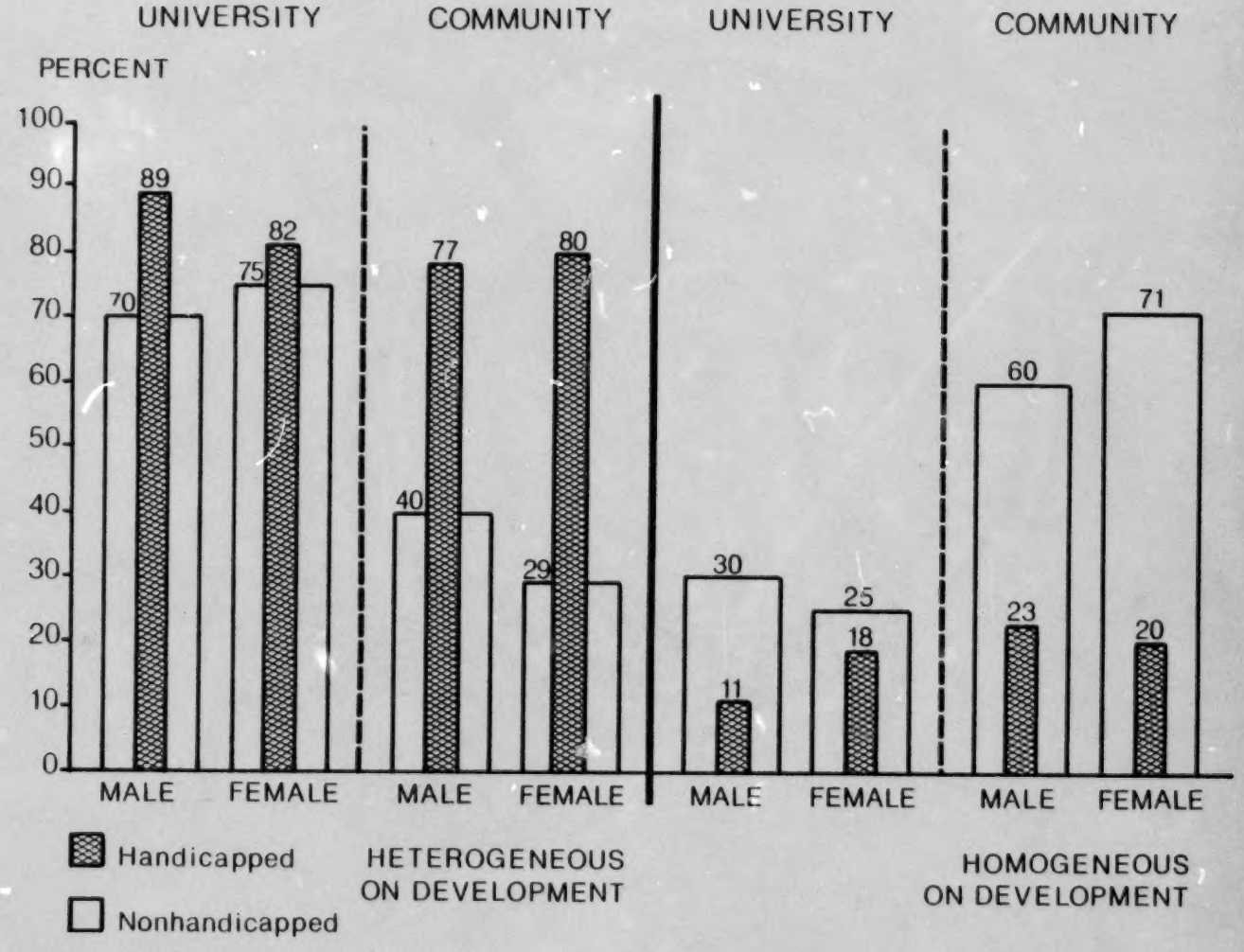
Number of Teachers

Developmental association. Analyses were conducted using the target child's developmental status, gender, age and program as the independent variables and homogeneity or heterogeneity on developmental status of the proximal groups as the dependent variable. The difference across programs for heterogeneous groupings was found to be significant ($F = 31.6$, $df = 4$, $p < .01$, $R = .41$) as was developmental status and program. Due to the fact that the frequencies are presented in the previous studies (see Tables 7-12), only a visual summary is presented here (see Figure 2). Handicapped children ($F = 56.76$, $p < .01$) and children in the university program ($F = 36.17$, $p < .01$) were more often involved in groups containing both handicapped and nonhandicapped peers. Interactions of developmental status and age ($F = 2.02$, $p < .05$) and program and age ($F = 8.37$, $p < .01$) also were found, which indicated that young university program children and handicapped younger children across both programs were more likely to be observed in proximity to children of varying developmental status. The three way interaction of age, developmental status and program was significant ($F = 2.52$, $p < .01$) indicating that it was the handicapped young university program children who associated more prevalently than expected with developmentally heterogeneous groups of children.

Conversely, nonhandicapped ($F = 72.56$, $p < .01$) children, females ($F = 4.45$, $p < .01$), and participants in the community program ($F = 34.18$, $p < .01$) were more likely to be observed associating with groups of children who were of similar (homogeneous) developmental stature, $R = .43$, $F = 36.09$, $df =$

Figure 2. Percent of Heterogeneous and Homogeneous Developmental Association for Handicapped and Nonhandicapped Males and Females in University and Community Programs.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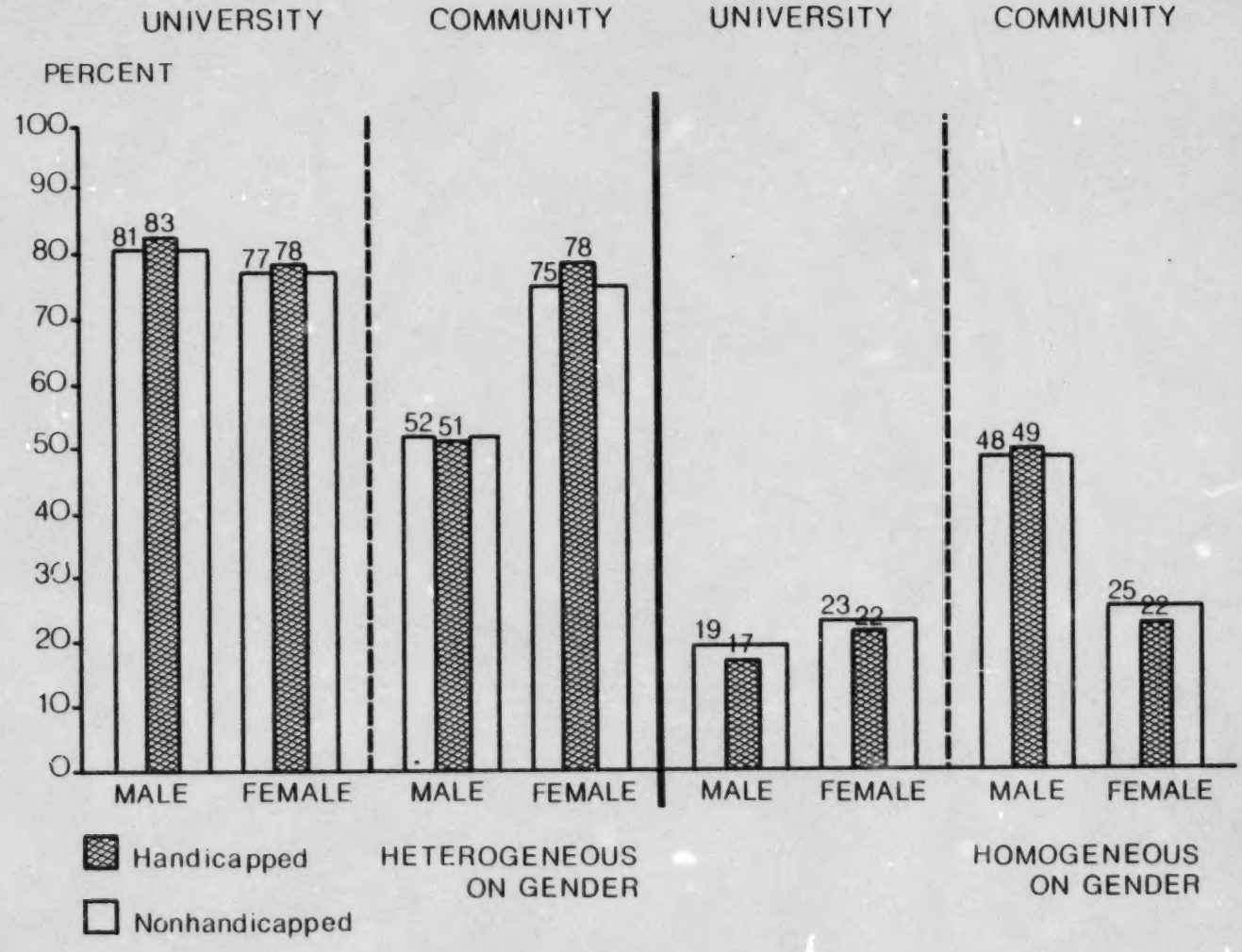
4,643, $p < .01$). First order interactions included developmental status and program ($F = 2.27$, $p < .05$) and program and age ($F = 6.60$, $p < .01$), thus suggesting that normal children in the community program and younger students in that program were with peers of a similar developmental level. Only gender, status and program combined significantly ($F = 4.08$, $p < .01$) here indicating that normal males in the community program associated more often with developmentally similar individuals.

Gender associations. Group inclusion based upon the gender of the playgroup participants was yet another basis for comparison. Program data concerning heterogeneous (mixed gender groups) and homogeneous (similar gender groups) are presented in Figure 3.

Being a girl ($F = 8.48$, $p < .01$) and a participant in the university program ($F = 9.15$, $p < .01$) were significantly associated with inclusion in mixed-sex playgroups ($R = .24$, $F = 10.19$, $df = 4,643$; $p < .01$). In addition, it was determined that a sex by program ($F = 9.44$, $p < .01$) first order interaction also existed, again for females in the university program. Status, age and program resulted in a significant interaction ($F = 3.07$, $p < .01$) suggesting that young handicapped university childrer were associating in an heterogeneous manner according to gende.

In contrast, being a boy ($F = 6.17$, $p < .01$) being of older age ($F = 4.30$, $p < .01$) and being in the community program ($F = 5.23$, $p < .01$) were found to be significantly related to inclusion in groups containing peers of similar gender status (homogeneity). ($R = .25$, $F = 11.42$, $df = 4,643$; $p < .01$). Gender and program

Figure 3. Percent of Heterogeneous and Homogeneous Gender Association for Handicapped and Nonhandicapped Males and Females in University and Community Programs.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HETEROGENEOUS ON GENDER
HOMOGENEOUS ON GENDER

were found to produce a first order interaction ($R = .26$, $F = 15.55$, $df = 4,643$, $p < .01$) supporting the finding for males in the community program.

Isolate behavior. There were children who remained isolated from their peers. Though extremely rare in nature, it was concluded that identical factors were influential in both of the programs. Dysfunctional development (fourteen out of sixteen instances) and being a male (eleven out of sixteen instances) were associated with social isolation.

Functional Characteristics

The second component in the analyses concerned the type of social contact and also delineated to or from whom it was directed. Specifically the functional hypothesis that was tested in the null form was:

There are no significant differences between the university model program and those provided in the community in the amount, form or referent of interactions observed for children varying in developmental status, gender or age.

Total social behavior. Though social behavior in the university and community programs was related overall ($R = .12$, $F = 28.75$, $df = 4,7998$; $p < .01$) to the variables of developmental status, gender age and program, only handicapped developmental status made a significant independent contribution ($F = 106.42$, $p < .01$). Higher order interactions of developmental status and sex ($F = 2.23$, $p < .01$) for normal females, developmental status and age ($F = 15.76$, $p < .01$) for young handicapped children, developmental status and program ($F = 8.84$, $p < .01$) for

handicapped children in the university program and sex and program ($F = 7.38$, $p < .01$) for females in the university program were revealed.

Referent selection: Teachers versus peers. A contrast between the amount of social contact young children have with teachers in contrast to that with their peers provides another framework for comparison between these programs. For the university children, without exception, the communication they have with their teachers predominated their social existence. The dispersion of social behavior for the community participants is almost diametrically opposed. The preeminent pattern here is one whereby the children have social traffic with other children. The differences in referent selection were statistically significant ($\chi^2 = 1508.72$, $df = 1$, $p < .01$). A consideration of the deviations from the expected frequencies led to the conclusion that children in the university program were associating with their teachers to a greater degree than would be expected.

Social behavior with teachers. The independent variables of program, developmental status, gender and age were found to be significantly related overall to social contact by children with teachers ($R = .47$; $F = 560.94$, $df = 4,7659$; $p < .01$). Participants in the university program ($F = 734.56$, $p < .01$), handicapped status ($F = 100.82$, $p < .01$) or younger age ($F = 61.29$, $p < .01$) and female gender ($F = 18.91$, $p < .01$) all contributed significantly to the teacher contact equation. Interactions among these factors consisted of status and age ($F = 4.32$, $p < .01$), status and program ($F = 2.50$, $p < .05$) and program

and age ($F = 27.85$, $p < .01$). These results therefore focus on normal young children, handicapped university children and young community participants. Sex, status and age ($F = 12.95$, $p < .01$) along with sex, status and program ($F = 2.74$, $p < .01$) interacted, implying that young handicapped males and handicapped males in the university group were more socially active with adults than were their classmates.

Social behavior with children. Child-child contact presented a different picture. Even though the independent variables were found to be influential overall in predicting peer contact ($R = .43$; $F = 444.04$, $df = 4,7659$, $p < .01$) the contrast was that being normal ($F = 88.54$, $p < .01$) or a male ($F = 2.39$; $p < .05$) or older ($F = 112.71$, $p < .01$) or in the community program ($F = 461.10$, $p < .01$) were the influential factors. First order interactions were status and sex ($F = 3.40$, $p < .01$), status and age ($F = 12.68$, $p < .01$) status and program ($F = 3.77$, $p < .01$), and program and age ($F = 16.41$, $p < .01$). This was interpreted as indicating normal males, normal older children, normal children in the community program and older children in the community program were more often in social contact with their peers.

Thus, it was concluded that teacher-child interaction occurred primarily between university participants, especially if they were handicapped and young. Child-child interactions were characteristic of the community program and most usually involved older nonhandicapped males.

Social behavior with types of children. Social contacts between focal children and specific categories of referent

individuals based upon the developmental status and gender of the referent became the next logical component in this analysis. When target children were in social contact with nonhandicapped males, the characteristics of the focal child were significantly related overall ($R = .33$; $F = 244.53$, $df = 4,7659$, $p < .01$) to the frequency of that contact. Normal developmental status ($F = 109.46$, $p < .01$), being a male ($F = 83.47$, $p < .01$), being an older child ($F = 120.30$, $p < .01$) and participating in the community program ($F = 82.66$, $p < .01$) were all influential. Combinations of these factors also proved to be significant overall ($R = .35$; $F = 111.64$, $df = 10,7653$, $p < .01$). Status and sex ($F = 7.10$, $p < .01$) status and age ($F = 1.94$, $p < .05$), status and program ($F = 2.98$, $p < .01$), sex and program ($F = 9.71$, $p < .01$) and program and age ($F = 11.10$, $p < .01$) were identified as significant first order interactions. These involved normal males, normal older children, normal children in the community program, males in the community and older children in the community. A three way interaction of sex, status and age ($F = 3.16$, $p < .01$) was found for nonhandicapped young males. The four way interaction between all the factors attained significance as well ($F = 6.55$, $p < .01$), referring to the young normal males in the community program.

When a nonhandicapped female was the other referent the independent variables were again found to be significantly related overall ($R = .23$; $F = 102.75$, $df = 4,7659$, $p < .01$). However, in this case normal developmental status ($F = 61.78$, $p < .01$), being a female ($F = 202.85$, $p < .01$), being older ($F = 3.23$, $p < .05$)

and membership in the community program ($F = 91.09$, $p < .01$) were of major importance; the gender variable being in contrast to the results found previously for males. Combinations of factors, such as status and sex ($F = 1.97$, $p < .01$), status and program ($F = 2.70$, $p < .01$), sex and program ($F = 70.12$, $p < .01$) and program and age ($F = 10.57$, $p < .01$) were significant. Thus normal females, normal children, females in the community and older children in the community program were observed to be in contact with normal females more frequently than other children. Since the four way interaction was also significant ($F = 5.11$, $p < .01$) the results were interpreted as indicating that normal, older females in the community program were most often observed in contact with nonhandicapped females.

The results of the analysis of covariance relative to contacts with handicapped males and females were found to account for less than 5% of the variance and were therefore not reported. These results were most probably a function of the limited contact which the handicapped students, both boys and girls, had in both programs, especially in contrast to that of the normal children.

Mode of interaction. Though significant differences were found relative to the mode of social contact utilized, whether verbal gives, verbal receives, physical gives or physical receives, between classmembers, the explained variance also was judged to be too low to report. This most probably indicated that the independent variables of program, developmental status, gender and age were not critical in determining the particular mode of contact a specific type of child would utilize. This was also the

case when the contacts were confined either to teacher-child sequences or child-child sequences.

Conclusions

These comparative analyses show a number of important differences between these programs. In their classroom associations the university students were most usually with one or two teachers while the community children associated with none or one. The other person involved in the interchange was most usually a teacher in the university classroom. When another child was the referent, a more prevalent finding in the community classroom, focal students most frequently were in contact with normal males. Handicapped females and males were associated with much less often.

It is the similarities between these programs however which may best serve to advance our understanding of developmental integration. The mere fact that social proximity or geographic closeness occurred cannot be ignored. Children in both of these programs do associate with fellow classmembers. Heterogeneous groupings based on developmental status and gender prevailed. The rare cases of social isolation that were found, consistently involve handicapped males who were not in proximity with either children or adults.

Verbal behavior predominated in both of these settings. This applied even for the youngest children and those experiencing dysfunctions in their development.

Handicapped children interacted with teachers more than did their normal classmates. So did females as compared to males.

The most common mode in this interaction was the teacher talking to the child.

Child-child contact was most usually shared with a normal male. This was more consistent for the university children but a majority of the community sample exhibited the same pattern. Interchanges with peers were found to be more prevalent for normal versus handicapped children and males versus females no matter in which setting the data were collected. These results are summarized in Table 16.

In spite of the fact that the significant differences in the mode of contact accounted for such a low percentage of the variance, an interesting fact did emerge relative to the prevailing form of social contact in each program related to the issue of peership. For the university group this pattern was verbal receive and then verbal give, while the community students more often used verbal give and then verbal receive. However, handicapped four and five year old females and all three year old males in the community program tended to show the same pattern as found in the university. When the data were examined even more closely it was determined that interchanges with adults were the influential factor. Teachers were most frequently. talking to these children Handicapped participants more than normal ones were included in teacher-child exchanges, a pattern similar to that found for the younger children, that is, the handicapped children's functional peers.

Table 16

Observed Similarities and Differences Between University and Community Programs

Similarities Between Programs	Differences Between Programs
Association With Teachers	**Association With Teachers**
Handicapped children associated with more teachers than do nonhandicapped children.	University students usually with one or two teachers. Community students usually with zero or one teacher.
Developmental Associations	**Developmental Associations**
Heterogeneous associations occurred more often than do homogeneous ones.	Homogeneous associations rare in the university setting, more frequently found in the community program.
Gender Associations	**Gender Associations**
Heterogeneous groupings occurred more often than do homogeneous ones.	Homogeneous association more frequent in the community setting.
Social Isolation	
Males to a greater extent than females. Handicapped children to a greater extent than nonhandicapped ones.	
Verbal and Physical Behavior	
Verbal contact is more prevalent than physical contact.	
Teacher Contact	
Was greater for handicapped versus nonhandicapped students; was greater for males as opposed to females.	
Teacher-Child Contact	**Teacher-Child Contact**
Verbal receives, verbal gives, physical receives and physical gives in rank order.	University students had more contact with teachers than did their community counterparts.
Child-Child Contact	**Child-Child Contact**
Predominantly with nonhandicapped males. Exhibited more for nonhandicapped versus handicapped children. Exhibited more by males than females.	Child-child contact was more prevalent in the community program.

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CHAPTER VI

CONCLUSIONS AND IMPLICATIONS

Recent legislative decisions (PL 94-142, Federal Register, 1977) have recommended the inclusion of children experiencing atypical development in early educational programs with normally developing agemates. Yet there exists a paucity of studies which observe directly the behavioral ramifications such developmental integration may have (Bell, 1977). Even though predicated upon the anticipation of benefits for all the children involved (Bijou, 1966; Goffman, 1963; Hayden, 1974), with the ultimate goal being the inclusion of delayed individuals in the least restrictive settings possible (Wynne, Ulfelder & Dakof, 1975), this prescription for "normalization" stands untested in this way. Equivocal results from a variety of studies (Turnbull & Blancher-Dixon, 1980) have highlighted the idea that the mere integration of children with differing developmental capabilities in the same space does not guarantee the advantages sought by lawmakers (Peters, Harris & Busch, 1978).

In order to advance our knowledge in this area a primarily comparative and descriptive study was conducted to investigate the subtle day to day patterns of social interaction among participants in integrated early childhood programs. Specifically, these studies were an attempt to determine the structural (social proximity) and functional (amount, form and referent) characteristics of social contacts between adults and children as well as among children themselves.

Previous research has alerted professionals in the field of child development to the contribution of a variety of factors to social interaction. For example, Gottfried and Seay (1974) found that older children engage in more frequent peer social activity. Hartup (1970) and McGrew (1972), report a decided preference for peers of the same sex as playmates. Thus, the factors of gender and age were incorporated into the design and analysis phases of the current research, even though developmental dysfunction, substantiated as a crucial factor effecting social behavior (Harlow, 1965; Fink, 1972; Biller, 1975; Skeels, 1966) served as the component of major interest.

Study I

Direct observation of verbal and physical emissions and receptions by children participating in a university model program showed that, indeed, young children do associate with other class members, at least in the geographic sense. This meant they were usually with one or two adults. The children who associated with teachers most were the handicapped, the females, and the young.

Association based on developmental status also was considered. Neither age nor gender was influential in predicting the incorporation of a child in either heterogeneous (developmentally mixed groups) or homogeneous (developmentally similar groups) aggregations with his or her peers. Further developmental heterogeneity in playgroup membership far outweighed homogeneous groupings, and most often involved handicapped children. When students were congregating near children of

similar developmental stature, they were more frequently nonhandicapped.

Being in the vicinity of peers according to their gender was additionally investigated. Here, again, heterogeneous associations (with individuals of both sexes) and homogeneous proximity (same sexed groups) were of interest. Proximity to peers of both sexes (heterogeneous groupings) dominated in the university program and none of the child characteristics proved to be significantly associated. Social isolation was extremely rare but when it occurred it was handicapped children and also the oldest children in this program who were involved.

Social contact for the program overall appeared to be relatively equivalent for handicapped and nonhandicapped students (44% versus 56%). This was also observed for males and females (49%; 51%) while greater discrepancies were found for age (90% versus 10%). Thus, age was the single effective factor influencing total classroom social contact. The latter findings were felt to be an artifact of the selection process in that the normal children were chosen to serve as developmental models and therefore, in order to reduce behavioral discrepancies, younger children were overly selected.

A clearer social design was determined by separating the analysis into two distinct parts. One dealt with teacher-child interactions which predominated in this program (80%; 15%). Handicapped children, females and younger children interacted significantly more with teachers. Variables in combination implicated handicapped males and normal young students.

Child-child interchanges, though occurring significantly less often, differentiated among students based on normal developmental status, male gender and young age. Handicapped males were engaged in less peer related behavior.

Through the calculation of a classroom social matrix, it was determined who was in contact with whom. Normal males, were found to be twice as active as handicapped males, and were principally in contact with other nonhandicapped males.

Thus, social proximity with adults and children based on developmental and gender groupings did occur. Teachers created the social definition of the classroom. When children were exclusively contacted, normal children, especially males, were involved.

Study II

The second study attempted to replicate the methodology and findings of study one. Since the second program was an outreach site for the original project, it was further anticipated that commonalities in curriculum and child management strategies would exist.

Relative to their geographic proximity to teachers, children in the community settings were most apt to be involved in playgroups which included zero or one teachers. None of the child characteristics resulted in differentially associating with teachers.

Developmental association differentiated between handicapped and nonhandicapped students, with delayed children and older ones being more likely to be with developmentally mixed peers. Older

handicapped students and older females also were more likely to be in these heterogeneous groups. In contrast, normal children, young children, and older males were more likely to be involved with other children of similar developmental status.

Association with both males and females was observed more for females. On the other hand, normality and being a boy were more predictive of homogeneous associations. Age did not seemingly influence gender association. Social isolation occurred most frequently among handicapped children, particularly male handicapped children.

The analysis of social contact indicated that handicapped status and age were associated with the type of peer contact. Young handicapped children and normal older males provided most of the influence.

In this setting, however, child-child interchanges were most prevalent (57% versus 35%). When contact was made with adults it was the handicapped, the females, and the young students who were more involved. Handicapped status and being a female along with handicapped status, age and being a female were the significant contributors in combination. That is young, handicapped females were most frequently associated with teachers.

Social behavior among the children was significantly related to being normal and being a male. These also contributed significantly in combination with each other. However, when three factors combined it was handicapped males who were older who contributed significantly to social interaction among peers.

Normal males had contact with normal males and normal females predominantly had other normal females as their primary referent.

Any conclusion from study two must encompass the fact that social proximity was characteristic of the community students. Children were involved equally in groups with or without adults, but preponderantly aggregated with fellow students. When the groups were homogeneous based on developmental level or gender status it was the normal children and the males who were more often involved. With teachers the handicapped students were more active as were females and younger children. These interactions were not as prevalent as those found among peers. Child-child interchanges were the hallmark of this program. As with the proximity data, the social data nominated normal children especially males and older participants as those most utilizing social behavior. Normal males were the child referent most chosen by handicapped and nonhandicapped students and children of all ages. It is only when referent is considered in light of the gender of the focal child that a different pattern can be found. Males had contact with normal males most but females contacted normal females more often.

Comparative Analysis

The final analytic phase of this effort addressed the similarities and differences between the two programs in order to determine whether the independent variables operate differentially between sites. A consideration of social proximity, social contact, teacher versus child contact and interchanges with specific child referents will be maintained.

Children in both programs were in proximity to teachers, however, the community participants were less frequently near adults. Handicapped children and females in the university program were more often in groups which included teachers.

Heterogeneous groupings based on developmental status predominated both programs. Being in aggregations containing both handicapped and nonhandicapped children was more often found for handicapped, young university students, although handicapped status in that program as well as young age were influential as single factors. In contrast, developmentally homogeneous groupings were a function of normal status, femaleness and the community program as single factors. The highest level of interaction among variables was found for normal males in the community program.

Gender based heterogeneity or homogeneity was considered next. It was found that being a girl or being a university participant predicted inclusion in groups with both boys and girls. This was especially true for young handicapped university children. Congregating with members of the same sex was observed most for males in the community program.

Social contact with other classmembers was mainly affected by developmental delay. However, handicapped females, handicapped four year olds, handicapped university participants and females enrolled in the university program were the variable combinations that significantly influenced social contact. Interestingly these were the combination of characteristics most

usually found in the university program for teacher-child contacts and therefore may explain their emergence here.

An examination of the adult-child contacts resulted in the determination that handicapped status, being a female, being young and membership in the university program each influenced this type of contact. Factors together included being normal and young, handicapped in the university program and being young in the university program. Three way interaction included being a handicapped young male and a handicapped male in the university program.

Children contacted other children more often in the community program. Child-child contact was associated with the factors of normality, maleness, being older and in the community program. These variables combined for normal males, normal older children, normal children in the community program and older community participants. Three way interactions were found for normal young males. Normal males were most often the young referent with whom classmates gave or received social behavior, and these were typically other normal males. When normal females were the referent of social action it was most usually normal, and female, and community students who were involved. Contacts to and from handicapped children were much less evident.

Program similarities were apparent as well. Handicapped children were more often found near adults in both programs. So was heterogeneous grouping on developmental and gender dimensions. Social isolation was more often found for males rather than females and handicapped children to a greater extent than

nonhandicapped children. Verbal behavior prevailed over physical contact. Social interchanges with adults were observed more for males and handicapped children. Nonhandicapped males were the major contributors to the social environment and they primarily interacted with other normal boys.

Implications

In this descriptive study of eight developmentally integrated preschool classes the objectives of describing and verifying existing patterns of social behavior and determining the relationship, if any, between those behaviors and the specific child characteristics of age, gender and developmental status across two programs have been accomplished. Components of social inclusion definitive of the two programs do indicate that at least one goal of the current legislative emphasis may indeed be thought of as being accomplished.

The direct observation of the structural characteristics of both programs revealed that these young children do indeed associate with other classmembers, both peers and adults, at least in the proximal or geographic sense. Being near other individuals characterized the social milieu of these young participants. Thus the first hypothesis, that no significant differences exist relative to the structural characteristics of the classrooms as a function of the age, gender or developmental status of the children cannot be rejected.

However, as previously stated, proximity is a necessary but insufficient cause for social contact. Therefore, an examination of the results concerning social interchanges in the programs was

initiated. Findings from these analyses indicated that the second hypothesis concerning no differences in amount or referent of social action can be rejected.

When the patterns of social contact were examined even more closely, thereby highlighting the value of ever more refined levels of analysis, it was concluded that interaction with adults was the influential factor, especially in the university program.

As previously suggested, this may be due, in part, to the fact that the training of professionals was integral to the university program. Student teachers were expected to demonstrate their competence in child management and teaching and did so.

When peer contact was examined, it was found that the community participants were much more involved with their peers. These latter findings concerning a decrease in teacher-child contact and an increase in peer interchanges may be interpreted in a positive light. The community program, as previously mentioned, was utilized as an outreach site for training in program components originally generated under the auspices of the university model program. Since greater proportions of total child behavior were shared among children, this can be viewed as being more facilitative of integration and the acquisition of normal behavior by handicapped individuals. Though this latter point has not been assessed directly in this study, the mere increase in his or her social contacts exhibited by handicapped children might be interpreted as a more "normal" pattern. The more "normal" patterns of behavior described here might also be a result of increased opportunities to observe and model appropriate

behavior, characteristic of the community classrooms, due to the greater numbers of nonhandicapped participants in that program.

A cautionary note must be interjected concerning which of their classmates children contact. Youngsters in both programs experienced little social input or output with handicapped children, especially handicapped males. Here it seems is the real message of this attempt to observe directly the moment by moment social encounters of young developmentally dissimilar individuals at play. These children seemingly are not developmentally integrated at the level of giving and receiving verbal and physical behavior, at least not to the degree that might be thought ideal given legislative and professional demands. Condemming as this may seem, it is recommended that the adults in both these programs be commended for the level of social behavior that is found. The levels attained may indeed be a function of the sensitivity and apparent teacher willingness, good will, and commitment to developmental integration. The next goal would therefore be to devise strategies which might produce more social transactions. It is toward this problem that the final comments are directed.

In one sense the ideas mentioned above might be thought of as limitations in the present research. However, these seem rectifiable given time since the data are available for analysis. There are some limitation, however, which seemingly can only be corrected within the context of a new effort. One is the question of size. With 209 participants observed for 547 two-minute periods resulting in 7871 four-component streams of

behavior this seems a reasonable base. However, when sub-groups are considered it is always desirable to have additional participants.

Certain "more" is critical when time is at issue. It would be optimal to have a greater amount of time in terms of months or years during which to focus on these behaviors with these children. A longitudinal effort would be advantageous, especially when a trend analysis is anticipated. In this manner each participant might serve as the basis for his or her own comparison and a developmental progression of both handicapped and nonhandicapped, males and females might be more accurately delineated.

A variety of extensions are presently being implemented relative to this social code. Currently, the specific target or referent of action is being determined through the assignment of specific individual numbers. In this manner an examination of exactly with whom the focal child is in contact can be made. The results will be a more informative description as to the cluster of referent characteristics in terms of age, gender and developmental status predictive of interaction relative to the attributes of the focal child. In a similar manner further refinement as to teacher-child contact can be made.

Additionally, more subtle forms of interaction, in this instance, eye gaze is also being taken into account. It may be that particular children rely more on observational learning for a period of time prior to commencing social contact or initiating specific sequences of behavior. Concurrently, the manipulation of

objects is also being investigated. All this is an attempt to gain a more clear picture of how each child is continually utilizing his time within any observational period.

Then too, the type of play, modified from a scale developed by Parten (1932), is being included. Here questions not only related to the level of play as a function of age may be considered, but an evaluation of the ability of such categorizations to predict the form and frequency of social contact relative to the developmental status of children, rather than age, can be made.

Further efforts generating new data might, for example, test specific programmatic components such as the mediation of peer reinforcement through the activities of a handicapped child. On a larger scale, longitudinal observations would be ideal in order to assess whether trends exist in the enhancement of social interchange as a function of specific experiences.

Even in light of these restrictions in the present studies, the overall conclusion must be that the initial goal of providing a descriptive account of the structural and functional patterns of social contact in natural settings has been achieved. A beginning at resolving the hiatus in observing the moment to moment social behavior of young developmentally differential children has also been accomplished.

As with any attempt to extend our knowledge base the new information, though resolving some issues, in turn becomes the foundation for further questions and research. These studies have not deviated from that tradition.

The present research is yet another effort toward the determination of factors which influence social behavior, here pertaining to young children. But discovery, that is the statement and test of relationships between events in nature (Burgess & Garbarino, 1981) is only, again, part of that initial step through validation to intervention.

As George Homans (1969) has noted,

> "Although the statement and test of relationships is the condition that must be satisfied if a human activity is to be judged a science, we should be much disappointed if that were all a science did." (p. 2)

The other major task is of course explanation for we are not "satisfied with science unless it explains as well as discovers, unless it tells us not only <u>that</u> relationships hold good but <u>why</u>." (p. 2)

With this small contribution to the discovery component of the scientific tradition the author leaves to another time or person, perhaps to Homans himself, the explanation.

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APPENDIX A

EXAMPLE CONTACT LETTERS AND RELEASE FORMS

Informed Consent

The Pennsylvania State University

Title of Investigation: Social Interaction in Developmentally Integrated Preschool Classrooms

Investigators: Donald L. Peters
Gary L. Schilmoeller
Judy M. Burgess

Date: February through May, 1980

This is to certify that I, _____, hereby give permission to have my child participate as a volunteer in a scientific investigation as an authorized part of the education and research program of The Pennsylvania State University under the supervision of Judy M. Burgess.

I additionally give permission for the release of information concerning the results of any testing or developmental assessment currently included in my child's records.

This investigation and my child's part in the investigation have been defined and fully explained to me by Mrs. Burgess and I understand her explanation. The procedures of this investigation and their risks and discomforts are described on the back of this form and have been described in detail to me.

I have been given an opportunity to ask whatever questions I may have had and all such questions and inquiries have been answered to my satisfaction.

I understand that any data will remain confidential with regard to my child's identity.

I FURTHER UNDERSTAND THAT I AM FREE TO WITHDRAW MY CONSENT AND TERMINATE MY CHILD'S PARTICIPATION AT ANY TIME.

I hereby consent to the participation of _____, a minor, as a subject in the scientific investigation described.

_____ _____
Date Signature of minor subject's parent or guardian

_____ _____
Date Signature of Investigator

Explanation of Study

Purpose of the study:

More and more interest has been developing over the past few years in how children of different ages and developmental levels work with each other in preschool classes. What ways do they use to communicate with other classmates and with their teachers? Are some children more verbal or do they use physical means? Does this change over time?

The purpose of this study is to answer these questions. It is a first step in learning how to create better programs for mainstreamed classrooms.

Procedures to be followed:

The children will be attending school as usual and participating in their regular activities. The study team will enter the classroom and watch how children interact with their classmates. While observing, the research staff will be sure not to interfere in any way with what the children are doing. We will, however, ask them to wear an attractive tag with their own special number on it to help us know who is playing with whom. This will also serve to protect each child's identity.

The master sheets with their names and numbers will remain in a locked file cabinet. Their behavior, coded by number, will be kept in the computer for storage and analysis. The consent forms will be kept by the Office of the Vice President for Research and Graduate Studies.

Discomforts and risks:

An effort will be made to keep everything in the classroom as usual as possible. A child may want to talk and play with our staff but we will gently encourage her or him to resume their activity. This has not been any problem in the past. Since the interference is minimal, it is felt that there are no risks to any class member.

Potential benefits:

This is the first step in planning even better programs for young children. We hope to share the information gained with the teachers as soon as the project is completed. This may mean that your child will derive some benefits from this investigation as soon as the next school year. We will also be communicating the findings to other professionals so it is possible that better planning strategies will be available to children outside the central Pennsylvania area too.

Period of time required:

Observations will be made during the regular school day, during free play periods. We will visit each class once a week until the end of May.

_____ _____
Date Signature of Investigator

_____ _____
Date Signature of minor subject's parent or guardian

Informed Consent

The Pennsylvania State University

Title of Investigation: Social Interaction in Developmentally Integrated Preschool Classrooms

Investigators: Donald L. Peters
Gary L. Schilmoeller
Judy M. Burgess

Date: February through May, 1980

This is to certify that I, _____, hereby agree to participate as a volunteer in a scientific investigation as an authorized part of the education and research program of The Pennsylvania State University under the supervision of Judy M. Burgess.

The investigation and my part in the investigation have been defined and fully explained to me by Mrs. Burgess and I understand her explanation. The procedures of this investigation and their risks and discomforts are described on the back of this form and have been described in detail with me.

I have been given an opportunity to ask whatever questions I may have had and all such questions and inquiries have been answered to my satisfaction.

I understand that any data will remain confidential with regard to my child's identity.

I FURTHER UNDERSTAND THAT I AM FREE TO WITHDRAW MY CONSENT AND TERMINATE MY CHILD'S PARTICIPATION AT ANY TIME.

_____ _____
Date Subject's Signature

I, the undersigned, have defined and fully explained the investigation to the above subject.

_____ _____
Date Investigator's Signature

Title of Investigation: Social Interaction in Developmentally Integrated Preschool Classrooms

Investigator: Judy M. Burgess

For the past few years, I have been interested in how children behave toward each other and toward their teachers while they are in preschool. I have done most of my work in University settings and would now like to see if I can find the same patterns of social contact in other schools.

I would very much appreciate your permission to watch your child as s/he plays during his or her regular school day. Therefore, I am sending home this consent form for you to sign. Then, please have your child bring it back to his or her teacher.

All information gained will remain confidential as to anyone's identity. When the study is finished I would be glad to tell you what is found.

Please feel free to contact me if you have any questions. I can be reached by telephone at (814) 863-0241. If this long distance call is difficult for you, please write a note to your child's teacher with your phone number and I'll contact you.

Mr. Jeff Koppell, the director of the program, has given his permission for us to come into the classroom. He agrees with me that the information we hope to gain is important in developing better programs for young children.

Thank you for your cooperation. I do appreciate it.

Sincerely,

Judy M. Burgess
Division of Individual and
Family Studies
College of Human Development
The Pennsylvania State University

Explanation of Study

Purpose of the study:

More and more interest has been developing over the past few years in how children of different ages and developmental levels work with each other in preschool classes. What ways do they use to communicate with other classmates and with their teachers? Are some children more verbal or do they use physical means? Does this change over time?

The purpose of this study is to answer these questions. It is a first step in learning how to create better programs for mainstreamed classrooms.

Procedures to be followed:

The children will be attending school as usual and participating in their regular activities. The study team will enter the classroom and watch how children interact with their classmates. While observing, the research staff will be sure not to interfere in any way with what the children are doing. We will, however, ask them to wear an attractive tag with their own special number on it to help us know who is playing with whom. This will also serve to protect each child's identity.

The master sheets with their names and numbers will remain in a locked file cabinet. Their behavior, coded by number, will be kept in the computer for storage and analysis. The consent forms will be kept by the Office of the Vice President for Research and Graduate Studies.

Discomforts and risks:

An effort will be made to keep everything in the classroom as usual as possible. A child may want to talk and play with our staff but we will gently encourage her or him to resume their activity. This has not been any problem in the past. Since the interference is minimal, it is felt that there are no risks to any class member.

Potential benefits:

This is the first step in planning even better programs for young children. We hope to share the information gained with the teachers as soon as the project is completed. This may mean that your child will derive some benefits from this investigation as soon as the next school year. We will also be communicating the findings to other professionals so it is possible that better planning strategies will be available to children outside the central Pennsylvania area too.

Period of time required:

Observations will be made during the regular school day, during free play periods. We will visit each class once a week until the end of May.

_____ _____
Date Signature of Investigator

_____ _____
Date Signature of minor subject's parent or guardian

APPENDIX B

CODE DEFINITIONS

Appendix B

DEFINITIONS FOR CODING BEHAVIOR

I. Subject/Respondents

FOCUS: Subject being observed

REFERENT: Other class member(s) interacting with Focus.

THREE SECOND CRITERION: Use a three second time interval as the criterion for scoring a second identical code. EX: Focus initiates verbally to same Referent as before. When focus stops verbalizing count 1001, 1002, 1003. If focus begins verbalizing to same Referent before count is finished, do not score another verbalization. Otherwise, a verbal initiation ends when a Referent interrupts the Focus, or when the Focus shifts his interaction to another Referent. A change in affect should be scored as a new verbal give. Also, a change in topic should be scored as a new verbal give.

II. Definitions of General Interactions

A. Verbal Give

1. Focus emits audible word(s) directed to one Referent.
   a. Word: Must be a "dictionary" word
      Do not score nonsense syllables, squeaks, giggles, grunts, cat calls, moans, etc.
      Score: Yeah
      Do not score: aaaa, oooo, eeeeh

   b. Aids in determining if verbalization is "directed to one other person."
      1) The Referent's name is used by Focus
      2) Focus's head is oriented toward Referent verbalizing
      3) Content of verbalization to Referent relates to interaction(s) previously scored as an interaction with that Referent.

2. Use a three second criterion

B. Verbal Receive

1. FOCUS receives audible word(s) from one Referent
   a. Word: Same definition as for Verbal Initiation

   b. Aids in determining if verbalization is "from one Referent:"
      1) Focus's name is used by Referent
      2) While verbalizing Referent's head is oriented toward FOCUS
      3) Content of verbalization to FOCUS relates to interaction(s) previously scored as an interaction with that FOCUS

2. Use a three second criterion

C. Physical Give

1. FOCUS intentionally extends a portion of his body and touches one Referent
   a. Touch: Physical contact between two persons or their clothing

   b. Physical transference of material from one person to another

2. Use a three second criterion

D. Physical Receive

1. FOCUS receives a touch from one Referent
   a. Touch defined as for physical initiation

   b. Also physical transference

2. Use a three second criterion

III. Definitions of Qualitative Interactions

A. NOTE: Any interaction scored qualitatively must meet the General Interaction Definitions

B. Verbal

1. Negatives
   a. Types
      1) Threatening verbalizations
         EX: "I'll throw this at you."
         "I'm going to tell Linda you don't like her."
         "I'm going to tell on you."
         "I'm gonna kill you!"

2) Negative affection verbalizations
EX: "I don't like you because you're on their side."
"I hate you."
"The teacher doesn't like you."

3) Insults, name calling, slander and other demeaning verbalizations
EX: "You're not very good at that."
"You sissy."
"You're not big enough."
"You smell."
"Kathy doesn't like your looks."
"It's all your fault."

4) Negative contingency verbalizations (usually involves a threat)
EX: "If you don't, I'll tell."
"If you throw that at me, I'll kick you."
"If you don't, I'll tell Doni."
"Give me the ball or I'll tell Lori to beat you up."

b. Aids in determining if verbalization is negative

1) Verbalizations accompanied by negative facial expression such as snarling, squinted eyes, frowning, growling, wrinkled nose or forehead

2) Verbalizations accompanied by negative physicals or threatening gestures (feigning middle finger, negative physicals)
Gruff, angry, mean, or threatening intonation
Verbalizations with violence oriented words
EX: Smash, break, slug, kick, poke, kill, destroy, maim, hit, pulverize, etc.

3) Context. If present verbalization relates to immediately preceding interaction (verbal or physical) that was negative, the present one has a higher probability of being negative

2. Positives
   a. Types
      1) Positive affective verbalizations
         EX: "I like that shirt."
             "I enjoy being with you."
             "I like you more than anyone else."

      2) Supportive verbalizations
         EX: "It's not his fault. Don't worry about it."
             "You can do it if you try."
             "It will work out next time."

      3) Compliments
         EX: "That's good work, Bob."
             "Nice going."
             "You look pretty today, Kathy."

   b. Aids in determining if verbalization is positive
      1) Verbalization accompanied by positive facial expressions such as smiling, laughing, grinning
      2) Verbalization accompanied by positive physicals (handshake, pat-on-back) or gestures (hand wave, shaking head yes, motioning to come).
      3) Pleasant intonation
      4) Verbalizations with positive words
         EX: Help, like, yes, will
      5) Context. If present verbalization relates to immediately preceding interaction that was positive, the present one has a higher probability of being positive

C. Physical: Any physical interaction scored according to these:

1. Negative
   a. Types
      1) Touch. Includes intentional hit, kick, punch, shove, trip, push, bite, pinch, slap, beat, step on, grab or tear clothing, strike, etc.
         EX: Jim kicks Ricky in the stomach
             Don pushes Ed to the ground
             Ron hits Gary in the neck
             Heidi pinches Bill on the bottom
             Chris slaps Ray on the ears

2) Throw.
EX: Scott throws a rock at Ricky
Lauri spits on Mark A
Ken hits Joe with a rock from a slingshot
Mike drops a tree branch on Brad

3) Misuse of object to strike or hit. Object not used as intended.
EX: Toby pokes Ricky with pool cue
Bert slams basketball into Ken's head
Scott throws a chair at a teacher

b. Aids in determining if physical interaction is negative
1) Interaction accompanied by negative facial expression, threatening gestures, or verbalizations, including gruff, angry, mean, or threatening intonation

2) Context. If present interaction relates to immediately preceding interaction (verbal or physical) that was negative, the present one has a higher probability of being negative.

2. Positive
a. Types
1) Touch. Person touches, pats, strokes, etc. other gently, with affection, sympathy, etc.
EX: Ricky and Joe shake hands
Scott strokes Brad's back after Brad was being pushed down
Rita pats Mike on the back when he chokes on a sandwich
David puts his arm around Mark H's shoulders
Toby and Rita hold hands

2) Give
EX: Ricky gives Joe a birthday card
Mark A gives Scott a piece of chocolate

NOTE: Whatever is given might be something special, not something that is transferred in the normal course of a game, school procedures, formal and informal interactions

b. Aids in determining if physical interaction is positive
   1) Interaction accompanied by positive facial expression, gestures, or verbalizations
   2) Context. If present interaction relates to immediately preceding interaction (verbal or physical) that was positive, the present one has a higher probability of being positive

IV. Definitions of Commands/Complies

A. Commands

1. Types
   a. Prescriptive Commands (Do) - statement of actions or activities that should occur
      1) EX: "Get the ball."
         "Pick up the toys."
         "Come over here."

   b. Proscriptive Commands (Don't) - statements about actions, activities which should not occur
      1) EX: "Don't touch your sister."
         "Don't talk to me like that."
         "Don't leave this room until you've picked up the toys."
         "Stop pushing Johnny."

2. Aids in determining whether a command has occurred
   a. Commands consist of a statement composed of a transitive (action) verb and a direct object. (Pick up your clothes.)

      trans. verb — D.O.

   b. Prescriptive commands include actions or statements which the command's recipients can perform to achieve compliance with the command ("Pick up your toys." Compliance - action of picking up toys)

   c. Proscriptive commands include actions or statements which must be terminated in order to achieve compliance.

B. Complies

1. Definition
Actions or statements conforming with the directions of a preceding command.
EX: Mother "Give me the ball." (command)
Child Child physically gives the ball to the mother. (comply)
Father "Call your sister to come for dinner." (command)
Child "Nancy, time to eat!" (comply)

2. Aids in determining whether a comply has occurred
a. An action preceded by a command

b. Action by a command's recipient which conforms to the behavior requested in the command

C. Refuses

1. Definition
A verbal statement by a command's recipient declining to conform to the command.
EX: Mother "Pick up your toys." (command)
Child "No!" (refuse)

2. Aids in determining whether a refuse has occurred
a. Preceded by a command

b. Concurrent with the statement that the expected actions or verbalizations will not occur, a compliance is not given

VITA

Name: Judy Lynn Myers Burgess

Address: 209 Elm Street
Lemont, Pennsylvania

Personal Data: Born: April 20, 1939
Marital status: Married, two children

Educational Background:

1974 University of Washington: B.A.
Major: Psychology and Sociology

1976 University of Washington: M.Ed.
Major: Early Childhood Education

1982 The Pennsylvania State University: Ph.D.
Major: Human Development and Family Studies
Minor: Clinical Psychology

Professional Experience:

Sept. 1980 - present: Instructor of Child Development and Child Services and Coordinator of the Child Development/Child Services Laboratory, College of Human Development, The Pennsylvania State University

Oct. 1979 - Sept. 1980: Student investigator and Co-director, BEH Student Research Grant (Grant number OEG-00-79-05-41) The Pennsylvania State University

Jan. 1980 - June 1980: Instructor, College of Education Lock Haven State College

June 1977 - June 1980: Graduate Assistant, College of Human Development The Pennsylvania State University

Dec. 1975 - June 1977: Graduate Assistant, HICOMP Project BEH First Chance Project The Pennsylvania State University